## REMARKS

From the Examiner's paragraph 1, Pages 51-53 have been amended into portrait orientation.

### Claim Objections and Rejections Under 35 U.S.C. § 112

From paragraph 2-5, certain claims are amended for formal consistency.

From paragraph 6 and 7, Claims 1, 33 and 67 have been rejected under 35 U.S.C. § 112, first paragraph.

From paragraph 8 - 17, Claims 3, 8, 16, 20, 39, 40, 47, 49, 51, 63, 65, 66, 72, 73, 80, 82, 84, 96, 98 and 99 have been rejected under 35 U.S.C. § 112, second paragraph.

Applicants' appreciate the Examiner's detailed review of the claims and assert that the amendments render these rejections moot.

In the Examiner's paragraphs 9 through 13, the Examiner rejects certain claims under 35 U.S.C. § 112. Applicants have amended the claims to remedy any problem under 35 U.S.C. § 112. None of these amendments made in these claims relate to scope, but are merely formal in nature and should not be used to unduly limit the interpretation of the claim scope.

Turning to the art rejections, as a preliminary matter, Applicants object to any citation of a secondary reference teaching a particular polymer material used by the Examiner in combination with other more primary references to teach fine fiber unless the secondary reference has some reason to believe that a nanofiber or microfiber can be made from the material of that reference. The instant specification cannot be used as a teaching. A general teaching of bulk polymer or ordinary macrofiber comprising a certain material does not raise a *prima facie* case of obviousness unless there is some reason to believe, by one of ordinary skill in the art, that the polymer material in a secondary reference can be made into a microfiber or nanofiber structure. One of ordinary skill in the art would not simply assume that, without reason to motivate, that any ordinary polymer material can be made into a fine fiber layer without some suggestion that such technology was feasible to form the fiber and the fibers would be stable after manufacture.

Further, to establish a *prima facie* case of obviousness, three basic criteria must be met:

(1) There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the reference teachings without hindsight to the claimed invention.

(2) There must be a reasonable expectation of success.

(3) The prior art references must teach or suggest all the claim limitations.

See In re Vaeck, 20 USPQ2d 1438 (Fed. Cir. 1991); MPEP § 2143 et seq.

Rejections Under 35 U.S.C. § 103

Claims 1-3, 7, 14-19 and 27 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., U.S. Patent No. 5,672,399 in view of Klosek et al., U.S. Patent No. 5,806,298 and Gallucci, U.S. Patent No. 4,849,474. Applicants respectfully traverse.

No *prima facie* case has been made. First, there is no suggestion in this art to combine the references without hindsight. Second, there is no reasonable expectation of success.

Neither Gallucci nor Klosek teaches filtration technology. Gallucci relates to bulk nylon. Klosek discusses gas turbine operation with no mention of filtration of input air. These references would not be selected by one of ordinary skill in the art for combination with filter technology. The Kahlbaugh et al. reference teaches a unique filter structure, very different than the structures claimed.

Hindsight appears to be the method of selecting the references. Klosek et al. do not discuss filtration or any air treatment prior to entry in the turbine system. The Gallucci reference is quite unique and different than all the other references in its structure and operation. It is the only primary reference used against the independent claims that teaches fine fiber. The other references against the independent claims teach conventional filtration, conventional media structures, conventional polymer materials or conventional macro fiber materials. This combination of references could only have been selected by hindsight. In the filter references there is no reason to believe that the structure and materials fail to provide adequate performance. There is nothing in Gallucci or Klosek that suggests that adding fine fiber can improve the performance of the structures and materials of the other references. Fine fiber has

a diameter that is generally greater than one order of magnitude (at least one tenth) smaller than typical fiber of the prior art. This fiber size results in a different realm of manufacturing problems, fiber and filter properties. The fibers are more delicate and are more difficult to make. One of skill in this art would not assume that any known polymer material could be made into a fiber, and that fiber could survive as a fine fiber in use.

Only Kahlbaugh relates to any aspect of fine fiber, but is so unique that it teaches nothing about the claimed structures. First, the Kahlbaugh et al. reference is a depth media that accumulates filtered particulate within the filter structure, while the claimed structure is a surface loading media. Further, the Kahlbaugh et al. reference relies on multiple layers of fine fiber separated by multiple separation layers and contains no real filtration media layer. The claimed structure includes a filtration media layer that is required for activity. Accordingly, the Examiner's rejection must fail.

In contrast to the Examiner's position, the recitation in Kahlbaugh does not teach "substrate layer having a permeability of 150 meters/min... ." This recitation clearly indicates that preferably the permeability of the material is **substantially greater than the lower limit recited**. In Kahlbaugh, depending on the properties of the fine fiber layer, a much greater permeability would be selected to match the fine fiber. This portion when read with the reference as a whole shows that the coarse separation layer cannot be understood to have any substantial filtration properties. The reference, taken as a whole, teaches the use of a substrate material having a higher permeability and lower efficiency consistent with Applicants' prior arguments.

The following listing is the substance of the disclosure in the Kahlbaugh reference regarding the nature of this coarse material from selected portions of Kahlbaugh et al., U.S. Patent No. 5,672,399:

| Location | Quotation |
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| Front Page, paragraph [57], under ABSTRACT | A preferred filter media, comprising multiple layers of fine fiber media separated **by coarse fiber support**, is provided. |
| Column 3, lines 35-37 | A preferred filter media construction according to the present invention includes a first layer of **permeable coarse fibrous media having a first surface**. |
| Column 11, lines 52-58 | A general approach for the utilization of fine fibers, i.e. on the order of 8 or 10 microns or less in diameter, preferably 5 microns or less and typically about 0.1 to 3.0 microns in **diameter (average), in filter media has been developed. In general, a very porous, permeable substrate of relatively coarse fibers is used as a support, for the very fine fiber** media. |
| Column 12, lines 6-9 | That is, the media comprises a web of fine fibers on at least one outer surface of **a structure of coarse fibers. The fine fibers in the web of fine fibers, then, are not mixed in or entangled with the coarse fiber support**. |
| Column 13, lines 47-51 | From the above it will be apparent that many typical filter media constructions according to the present invention, when configured for use to filter, will include multiple layers of media, with at least two layers effectively comprising a **coarse framework supporting fine fibers or a fine fiber web**. |
| Column 14, lines 4-7 | Construction 10 includes a layer or region 13 of media comprising a **coarse support 14 having a thin layer** 15 of fine fibers on a surface thereof. |
| Column 14, lines 21-24 | It comprises a stack of layers of fine fibers, each of which is spaced from the next adjacent fine fiber **layer by a coarse separating or support layer**. |

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| Column 14, lines 28-34 | Again, there is no requirement that the fine fiber layers be identical to one another, or that the **various coarse support layers be identical to one another. By "discrete"** in this context it is meant that each fine fiber layer is not substantially entangled with the **separating coarse support fibers, but** rather each fine fiber layer generally sits on a surface of a support structure. |
| Column 14, lines 36-47 | **A principal function of the coarse material in filter media layers according to the present invention is to provide for a framework across which the fine fibers are extended. Another principal function of the coarse material is to provide for spacing between the regions or layers of fine fibers, in the stack, so that the separated layers of fine fibers do not collapse into a relatively dense (i.e. low permeability and relatively low loading) construction. The coarse support/spacing structure is not typically provided to serve any substantial filtering function. Indeed, it preferably is a material so open and permeable that it does not serve any substantial filtering function.** |
| Column 14, lines 63-66 | **a. It is preferred to select a material which has a very low percentage solidity and a very high permeability, if** possible, to enhance the "void space" across which the fine fiber web will extend. |
| Column 14, line 66 through Column 15, line 3 | A material which has a filtering efficiency of only about 10% or less, typically 5% **or less and preferably only 1-4%, for trapping 0.78 micron particles** according to the test described herein, sometimes referred to as LEFS efficiency, will be preferred. |
| Column 15, lines 3-6 | Preferably it is a material having a single layer permeability when evaluated by the Frazier Perm Test, **of at least 150 meters/min, typically at least about 200-450 meters/min.** |
| Column 15, 47-50 | In addition, it is an advantage **that the coarse support can be provided from readily available fibrous material such as** polymeric fibers. |
| Column 15, lines 50-51 | Thus, commercially available materials can be chosen **as the coarse support or scrim.** |
| Column 15, lines 52-54 | d. The material from which **the coarse support is formed** should be one to which the fine fibers can be readily and conveniently applied. |

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| Column 16, lines 10-17 | In general, it is believed that commercially available **fibrous scrims can be used as the coarse support. One such scrim is Reemay 2011, c mmercially available from Reemay Co. of Old Hickory, Ind. 37138. In general, it comprises 0.7 oz., spunbonded polyester.**<br>**Alternatively, Veratec grade 9408353, spun bonded polypropylene material, from Veratec, Walpole, Mass. 01081, is usable.** |
| Column 16, lines 25-28 | a. It should be a material that can be readily formed into fibers with the relatively small diameter selected, for application to **the coarse support, or** into a web or network of such fine fibers. |
| Column 16, lines 32-33 | c. It should be a material which can be readily applied to the **coarse support.** |
| Column 16, lines 40-45 | It is foreseen, however, that similar techniques and webs, applied **to coarse support structures as** described herein, and used in stacked arrangements as described herein, would comprise appropriate and useable applications of the present invention. |
| Column 16, lines 65-66 | The fine fibers can be **secured to the coarse support in a** variety of manners. |
| Column 17, lines 31-35 | In general, from the above it will be apparent that a layer of media used in constructions according to the present invention will generally **include a coarse support** having a layer or web of fine fibers secured to at least one surface thereof. |
| Column 18, lines 24-29 | It is foreseen that in typical, preferred constructions having fine fiber diameters of about 0.1 to 5.0 microns, the mass of material from which the fine fibers are formed, **applied per unit surface area of scrim or coarse support, will be within the range of about 0.2 to 25 g/m$^2$,** regardless of the particular material used. |
| Column 18, lines 30-35 | An alternate method to characterize a typical and preferred media layer in constructions according to the present invention is with respect to the amount of interfiber space open or visible, when looking into **the coarse fiber support** or scrim (from the fine fiber side), that is occupied by or covered the fine fibers or web of fine fibers. |
| Column 18, lines 41-43 | **The coarse support comprises polyester fibers of 25 to 35 microns in diameter. The fine fibers generally comprise glass fibers from about 0.1 to 3 microns in diameter.** |

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| Column 19, lines 3-14 | In general, **if a coarse fiber support** structure comprising fibers having an average diameter of at leas 10 microns, and also having an efficiency of 6% or less, for 0.78 micron particles when evaluated as described herein, is improved by application of at least one fine fiber layer thereon, wherein the fine fibers have an average fiber diameter of about 5 microns or less, such that the improved material when tested has an efficiency of at least about 8%, and preferably at least 10%, for the 0.78 micron particles defined, the construction will be one which has at least some of the desirable properties for use in at least certain preferred arrangements according to the present invention. |
| Column 27, lines 33-35 | **M. Positioning of the Fine Fiber on the Coarse Support; Orientation of the Fine Fiber Layer with Respect to Fluid Flow** |
| Column 30, lines 30-32 | In those instances the media comprised a layer of glass microfibers on a porous **polyester scrim (Reemay 2011).** |
| Column 30, lines 34-36 | The coarse scrim generally comprised the polyester scrim described above, commercially available **under the designation Reemay 2011.** |
| Column 34, lines 11-15 | For instance, if a composite had an LEFS efficiency of 50% and was made of 6 layers, each layer **(Reemay 2011** substrate with fine fibers thereon) would have an LEFS efficiency of 10.9%. |
| Column 39, lines 46-49 | **It comprises DCI polymeric fine fiber deposited on Reemay 2011, depicted at 100-fold magnification. The media depicted had a percent efficiency of 12% LEFS.** |

The portions shown above disclose a layer between the fine fiber layers that is a course layer for "support/spacing" (Col. 14, lines 36-47) functions not to add filtration properties to the structure. The portion that discusses permeability and efficiency (Col. 14, line 63 to Col. 15 line 6) indicates that the **permeability is to be maximized** while the **efficiency is kept to a minimum.**

Applicants challenge the Examiner's position that the reference teaches that the support has a "permeability of 150 m/min (2.5 m/sec) and an efficiency of 10 percent ..." (page 3, the last paragraph). These parameters are extreme limits of the ranges in the patent. In use, the materials disclosed will not simultaneously possess both these extreme layer characteristics (efficiency and

permeability). In a real material that is optimized for both high permeability and low efficiency, these extreme limits could not be reached and would not be used by one skilled in the art.

The Reemay 2011 scrim material that is used as a coarse support material in the exemplary section of Kahlbaugh et al. is a material made by spinbonding polyester fiber. The Reemay scrim has a very low efficiency on standard 0.8 micron polystyrene particles typically less than 4% with a **high permeability of 1070 ft./min (326 m/min)**. Attached to this letter is a copy of product specification materials discussing the nature of Reemay 2011 scrim showing that it is deliberately chosen not to have filtration properties, particularly when compared to other non-woven materials made by the same vendor having substantially higher filtration properties. The Reemay scrim is selected for its structural support and separation characteristics not its filtration characteristics.

Further, Applicants submit the enclosed Kahlbaugh declaration demonstrates that Kahlbaugh et al. reference does not teach the invention. The Kahlbaugh declaration attached is one from a related case and is cited only for the discussions about the teaching in the Kahlbaugh reference. Kahlbaugh et al. show a substantially different technology than that claimed. Kahlbaugh et al. discloses a unique filter laminate that is unrelated to the claimed invention. Kahlbaugh et al. discloses a structure designed to operate efficiently with multiple layers of fine fiber separated by coarse non-filtration support layer having little or no filtration properties. Kahlbaugh Dec. ¶ 4.

The overall filtration efficiency of the materials claimed is substantially degraded if a layer of media with substantial filtration properties is inserted into the Kahlbaugh et al. structure. The claimed invention uses a cooperation between a filter medium layer and two or more fine fiber layers to obtain filtration properties. Any random substitution of layers in the Kahlbaugh et al. structure would likely not result in a useful filter structure. Kahlbaugh Dec. ¶ 8.

Claims 4 and 6 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al. and Gallucci as applied to claim 1 above and in further in view of Emig et al., U.S. Patent No. 6,395,046 and Baumann et al., U.S. Patent No. 6,354,296. The Examiner's rejection of claims 4 and 6 must fail, since the main references do not teach the primary aspects of the invention. Emig et al. and Baumann et al. do not solve problems raised in the original rejection. The Emig et al. vacuum cleaner bag structures would not be used in a turbine filter structure of any sort and, particularly, would not be used in the Kahlbaugh et al.

structures. Baumann et al. are irrelevant since it does not directly relate to filtration technology but solves problems in the fogging of eyeglasses caused by facemask design.

Claim 5 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al. and Gallucci as applied to claim 1 above, and further in view of Asano et al., U.S. Patent No. 6,177,192. The Examiner's rejection of claim 5 must fail, since the main rejection must fail. Asano et al. is a general reference teaching ordinary fiber materials, has no relation to fine fibers and would not be selected by one of ordinary skill in the art relating to the polyester materials.

Claims 8-11 have been rejected under 35 U.S. C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al. and Gallucci as applied to claim 7 above, and further in view of Okamoto et al., U.S. Patent No. 3,731,352. The Examiner's rejection of claims 8-11 must fail because the primary references do not teach the invention; however, further, the fibers in Okamoto et al. relate to ordinary fibers and do not teach either fine fiber or filtration technology.

Claims 12 and 13 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al, Klosek et al., Gallucci and Okamoto et al. as applied to claim 11 above, and further in view of Ueda et al., U.S. Patent No. 3,739,055. Similarly, the rejection of claims 12 and 13 must fail, since the primary rejection based on the primary references must fail. Moreover, Okamoto et al. and Ueda et al. teach bulk polymer or macrofiber and do not teach either fine fiber technology or filtration technology. These references would not be selected for combination by one of ordinary skill in the art looking for either fine fiber or filtration technologies.

Claims 20-22 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., and Gallucci as applied to claim 1 above and further in view of Jariwala et al., U.S. Patent No. 6,391807. The rejection of claims 20-22 similarly fails because the primary references do not teach the invention. In addition, Jariwala et al. is a hindsight reference since it does not relate to either filtration technology or fine fiber technology and, as such, must fail as a teaching reference.

Claims 23-26 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al. and Gallucci as applied to claim 1 above and further in view of Emig et al., U.S. Patent No. 6,395,036. The Examiner's rejection of claims 23-26 must fail as

discussed above, since the primary references and Emig et al. (vacuum cleaners) do not relate to the invention.

Claim 28 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al. and Gallucci as applied to claim 1 above and further in view of Idemura et al., U.S. Patent No. 6,063,862. The Examiner's rejection of claim 28 must fail, since the primary rejection over the primary references is insufficient and, further, because Idemura et al. teach ordinary fiber technology combined with glass fiber, do not teach filtration technology or fine fiber technology and would not be selected by one of ordinary skill in the art in combination with any reference for the purpose of forming filtration structures from fine fiber materials.

Claim 29 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci and Idemura as applied to claim 28 above and further in view of Muto et al., U.S. Patent No. 5,324,558. Claim 29 is patentable, since the Examiner's primary rejection over the primary references must fail. The further citation of Idemura et al. and Muto et al. (tube extrusion) are irrelevant to the technology, since there is no teaching in either of the secondary references to use these materials in fine fiber technology or in filtration technology.

Claim 30 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci as applied to claim 1 above and further in view of Dzenis et al., U.S. Patent No. 6,265,333. The rejection of claim 30 must fail because the primary references do not teach the invention and, further, because the Dzenis et al. reference also does not remedy the problems in the primary references. Furthermore, the structurally optimized laminated structures in Dzenis et al. are so different than filtration layers that one of ordinary skill in the art would not use the fine fibers from Dzenis et al. in a filtration material. Dzenis et al. teach that the fine fiber properties are such that they conform to the structure and make the structure stronger and improve other structural properties of the materials. One of ordinary skill in the art would not combine this reference with any reference for the purpose of obtaining filtration technology.

Claim 31 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci as applied to claim 1 above and further in view of Ueda et al., U.S. Patent No. 5,188,376. The rejection of claim 31 must fail because the primary

rejection over the primary references is insufficient and, further, because Ueda et al. does not solve the problems of the primary references. Ueda et al. disclose conventional fiber materials, does not teach filtration technology and would not be selected by one of ordinary skill in the art regarding either fine fiber technology or filtration technology.

Claim 32 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci and Ueda et al. as applied to claim 43 above and further in view of Okamoto et al. Okamoto et al. teach improving impact properties of a resin and no aspect of filtration or fine fiber. The rejection of claim 32 must fail, since the primary rejection over the primary references is insufficient and because neither Ueda et al. nor Okamoto et al. can remedy the problems in the main references. Neither Ueda et al. nor Okamoto et al. teach fine fiber or filtration technologies and neither would be selected by one of ordinary skill in the art in this technology without regard to the invention.

Claims 33, 34, 38, 45-50, 58, 66, 67, 78-83, 91 and 99 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al. in view of Klosek et al. and Gallucci. Applicants respectfully traverse.

No *prima facie* case has been made. First, there is no suggestion in this art to combine the references without hindsight. Second, there is no reasonable expectation of success.

Neither Gallucci nor Klosek teaches filtration technology. Gallucci relates to bulk nylon. Klosek discusses gas turbine operation with no mention of filtration of input air. These references would not be selected by one of ordinary skill in the art for combination with filter technology. The Kahlbaugh et al. reference teaches a unique filter structure, very different than the structures claimed.

Hindsight appears to be the method of selecting the references. Klosek et al. do not discuss filtration or any air treatment prior to entry in the turbine system. The Gallucci is quite unique and different than all the other references in its structure and operation. It is the only primary reference used against the independent claims that teaches fine fiber. The other references against the independent claims teach conventional filtration, conventional media structures, conventional polymer materials or conventional macro fiber materials. This combination of references could only have been selected by hindsight. In the filter references there is no reason to believe that the structure and materials fail to provide adequate performance. There is nothing in Gallucci or Klosek that suggests that adding fine fiber can

improve the performance of the structures and materials of the other references. Fine fiber has a diameter that is generally greater than one order of magnitude (at least one tenth) smaller than typical fiber of the prior art. This fiber size results in a different realm of manufacturing problems, fiber and filter properties. The fibers are more delicate and are more difficult to make. One of skill in this art would not assume that any known polymer material could be made into a fiber and that fiber could survive as a fine fiber in use.

Only Kahlbaugh relates to any aspect of fine fiber, but is so unique that it teaches nothing about the claimed structures. First, the Kahlbaugh et al. reference is a depth media that accumulates filtered particulate within the filter structure, while the claimed structure is a surface loading media. Further, the Kahlbaugh et al. reference relies on multiple layers of fine fiber separated by multiple separation layers and contains no real filtration media layer. The claimed structure includes a filtration media layer that is required for activity. Accordingly, the Examiner's rejection must fail.

In contrast to the Examiner's position, the recitation in Kahlbaugh does not teach a "substrate layer having a permeability of 150 meters/min... ." This recitation clearly indicates that preferably the permeability of the material is **substantially greater than the lower limit recited**. In Kahlbaugh depending on the properties of the fine fiber layer, a much greater permeability would be selected to match the fine fiber. This portion, when read with the reference as a whole, shows that the coarse separation layer cannot be understood to have any substantial filtration properties. The reference, taken as a whole, teaches the use of a substrate material having a higher permeability and lower efficiency consistent with Applicants' prior arguments.

Applicants repeat the line-by-line analysis Kahlbaugh set forth above.

In paragraphs 32-42, the Examiner repeats the rejection of paragraphs 20-30. These rejections are as follows:

Claims 35, 37, 68 and 70 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci as applied to claims 33 and 67 above, and further in view of Emig et al. and Baumann et al.

Claims 36 and 69 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci as applied to claims 33 and 67 above, and further in view of Asano et al.

Claims 39-42 and 72-75 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci as applied to claims 33 and 67 above, and further in view of Okamoto et al.

Claims 43, 44, 76 and 77 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci and Okamoto et al. as applied to claims 42 and 74 above, and further in view of Ueda et al.

Claims 51-53 and 84-86 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci as applied to claims 33 and 67 above and further in view of Jariwala et al.

Claims 54-57 and 87-90 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci as applied to claims 33 and 67 above and further in view of Emig et al.

Claims 59 and 92 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci as applied to claims 33 and 67 above and further in view of Idemura et al.

Claim 60 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci as applied to claims 58 above and further in view of Muto et al.

Claims 61 and 94 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci as applied to claims 33 and 67 above and further in view of Dzenis et al.

Claims 62 and 95 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci as applied to claims 33 and 67 above and further in view of Ueda et al.

Claims 63 and 96 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci and Ueda et al. as applied to claims 62 and 95 above and further in view of Okamoto et al.

Applicants repeat their response to the individual rejections and reiterate that the references, other than Kahlbaugh, as a whole, do not relate to filtration or fine fiber technology.

Claims 64, 65, 97 and 98 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci as applied to claims 33 and 67 above

and further in view of Raether, U.S. Patent No. 5,562,746. The rejection of claims 64, 65, 97 and 98 over the primary references in combination with Raether must fail. Of these references, only Kahlbaugh et al. and Raether teach filtration technology. The nature of the filtration structure in Kahlbaugh et al. and the filtration structure in Raether are so substantially different that one of ordinary skill in the art would not combine these references. The Kahlbaugh et al. reference is primarily a multilayer filter structure made from fine fiber separated by a separation layer made of media having essentially no filtration properties. Kahlbaugh et al. teach a depth media wherein the particulate separated from the air stream are formed within the separation layers. Raether, on the other hand, discloses a generic flat and pleated media structure, does not discuss fine fiber and is a surface loading filtration structure. Accordingly, not only would one of ordinary skill in the art not combine Kahlbaugh et al. and Raether, but if combined, would not result in the claimed invention.

The primary references fail to teach the invention. The secondary references in the following rejections also do not remedy the filings of the primary rejections.

Claim 71 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci as applied to claim 67 above and further in view of Baumann et al. As discussed above, the references deal with non-filtered turbine intake, bulk nylon and not filtration or fine fiber.

Claim 93 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kahlbaugh et al., Klosek et al., Gallucci and Idemura as applied to claim 92 above and further in view of Muto et al. The Examiner's rejection over the primary references and Idemura and Muto et al. must fail, since the primary rejection is insufficient. Further, neither Idemura nor Muto et al. teach either fine fiber technology or filtration technology.

## The Use Rejections

Claims 1-3, 7-11, 14-19, 25-27, 33, 34, 38-42, 45-50, 58, 67, 71-75, 78-83, 91 and 93 have been rejected under 35 U.S.C. § 103(a) as obvious over the public use or sale of the invention in view of Gallucci.

Claims 12, 13, 43, 44, 76 and 77 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the public use and sale of the invention and Gallucci as applied to claims 11, 42 and 75 above and further in view of Ueda et al.

Claims 20-22, 51-53 and 84-86 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the public use and sale of the invention and Gallucci as applied to claims 1, 33 and 67 above and further in view of Jariwala et al.

Claims 64, 65, 97 and 98 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the public use and sale of the invention and Gallucci as applied to claims 33 and 67 above and further in view of Raether.

In paragraphs 46 through 49, the Examiner rejects the claims under 35 U.S.C. § 102(b) over an alleged public use in combination with Gallucci, Ueda et al., Jariwala et al. and Raether. As discussed below, the alleged public use constituted an experimental trial and, as such, is not prior art under 35 U.S.C. § 102(b). Further, of the secondary references, Gallucci, Ueda et al. and Jariwala et al., do not relate to either fine fiber technology or filtration technology and, as such, are not eligible for combination in any rejection. Of the secondary references, only Raether relates to filtration technology; however, Raether does not teach fine fiber technology and does not suggest that fine fibers can improve filtration properties and relies apparently on a single layer of an ordinary filtration media for filtration purposes. As such, Raether provides nothing relating to the technology.

Contrary to the Examiner's position, all the evidence in the Crofoot declarations and in the attachments to this paper show that the purpose and intent of the experimental trial was to demonstrate that the material could be manufactured into a media, could be manufactured into a filter and then survive the varied conditions of filtration operations at the test sites.
The relevant dates are:

| **Date** | **Purpose** |
|---|---|
| March-April, 1999 | Manufacturing plant trial |
| May-June, 1999 | Experimental use filter distribution |
| November, 1999 | End of use trial |
| September 5, 2000 | File initial provisional application |
| May 31, 2000 | File utility case |
| August 1, 2000 | Approve material for commercial use |

Contrary to the Examiner's position, the polymeric material used in the fine fiber was not ready for patenting under the PFAFF test until the completion of the experimental trial that was required to show that the material had sufficient properties to be patentable over the prior art fine fiber and had utility in the use environment. Clearly the material was not ready for patenting until that proof was obtained from the testing program. The PFAFF case clearly indicates that in order for a material or an invention to be ready for patenting, sufficient testing must be completed to show utility in the use environment.

## DETAILED DISCUSSION

The following discusses documents (copies attached to this paper) that detail the experimental trials from January of 1999 through December of 1999, the critical period for this application. The application provisional was filed in September of 2000. As long as the actions of Donaldson Company, Inc. during this period were considered experimental, then they cannot act as a prior art event prior to the filing date of the application. The polymer material did not leave the premises of Donaldson Company, Inc. until the individual filter units were distributed

to the test locations in April of 1999. Accordingly, there can be no prior art event prior to April 1999; however, as detailed in the following documents, the trial was experimental as evidence by the following documents.

Exhibit 1 (Exhibits 1-5 are dated January of 1999 ) is an e-mail indicating that the **trial** using the new polymer would be conducted and that the polymer material on the media would be controlled and tracked using labels that would identify the material in case an:

"element is returned from the field, I can determine if it was manufactured using FB2-X".

Exhibit 2 similarly shows that the rolls of media using the new polymer will be marked with a red band and a label indicating the use of the experimental material and that any returned material will be identified as the experimental units.

Exhibit 3 similarly shows that the trial was considered a temporary use to determine and evaluate the media. The memo shows that personnel:

"will track the use of the rolls by listing the roll number with the time and date of production. Since the elements have a time date stamp, any return elements can be linked with the LH type".

Exhibit 4 similarly shows the planning for the project to:

"evaluate new fine fiber type"

and that the personnel is to:

"log roll numbers used on production runs for tracking purposes."

Exhibit 5 shows that, as of the date of the exhibit, the fine fiber media was clearly under development and had not completed its "probationary" trial.

Exhibit 6 dated February of 1999 shows that the internal use of the material was still considered a "trial" of the new material on different media layers.

Exhibit 7 dated March of 1999 shows that Donaldson Company, Inc.'s production plant "Plant 54" has "completed a production size trial of the media." This media "will shift to Frankfurt to pleading trials and fabrication into filters." The memo indicates that the trial required evaluation for future recommendations.

Exhibit 8 discusses the plant run of the media for the field test indicating the use of: "special markings should there be any field problem returns."

Exhibit 9 dated June of 1999 shows that the material had not been approved for use by the business units. The Exhibit shows that, in June of 1999, the material was still experimental and had not been "scaled-up" until later.

Exhibit 10 dated July of 1999 shows that the material was in a trial phase in August and September of 1999.

Exhibit 11 dated December of 1999 shows that the material was still considered on a trial basis and suitability for commercial production had not been demonstrated.

Clearly, as of December 1999, three months after the critical date for the instant application, the material was experimental and remained in a "trial" basis. The material was not approved for commercial production until August of 2001 at which time it was approved for production and used in a number of filter media structures. Between December of 1999 and August of 2001, no activity outside Donaldson Company, Inc. occurred other than the trial of the materials at the trial sites. The trial was successful and the materials were discarded.

Turning now to the alleged use rejection, contrary to the Examiner's position, all the evidence in the Crofoot declarations and in the attachments to this paper show that the alleged use was not a pubic use or sale under 35 U.S.C. § 102. Rejections in this area of the law are governed by *Pfaff v. Wells Electronics Inc.*, 48 USPQ2d 1641 (S Ct 1998). Under the *Pfaff* test, the on sale bar applies when two conditions are satisfied before the critical date. First, the product must be the subject of a commercial offer for sale. If the transaction is entirely experimental, the first test is not satisfied. Secondly, the invention must be ready for patenting. *Pfaff v. Wells Electronics Inc.*, 48 USPQ2d 1641 at 1642. Under the facts in the *Pfaff*, the Supreme Court assumed that the inventor recognized that the invention was completed and was known to be workable, and that no further testing was needed to prove either workability or unobvious properties. In the instant case, **neither of the *Pfaff* tests is satisfied**. The purpose and intent of the inventors were to conduct an experimental trial to demonstrate that the material (1) could be spun and manufactured on a media, manufactured into a filter and could survive the varied conditions of filtration at the test sites and (2) had unobvious properties over the prior art materials. Until the experimentation was complete, (1) the material was experimental (not commercial) and (2) the invention was not ready for patenting.

**The Alleged Use was Experimental and**
**the Invention was not Completed and Ready for Patenting**
**I. The Alleged Use Was Experimental**

Prior to the experimental trial, the fine fiber was not known to be (1) capable of manufacture into a filtration media, (2) capable of forming a filter structure, or (3) capable of surviving hot, humid use conditions.

Under the *Pfaff* test, the on sale bar applies when two conditions are satisfied before the critical date. First, the product must be the subject of a commercial offer for sale. If the transaction is entirely experimental, the first test is not satisfied. *Pfaff v. Wells Electronics Inc.*, 48 USPQ2d 1641 at 1642. Under the facts in *Pfaff*, the Supreme Court assumed that the inventor recognized that the mechanical invention as shown in the drawings was known to be workable and **no further testing** was needed to prove either workability or unobvious properties. In *Pfaff* there was **no evidence of experimental use** and the use in *Pfaff* was assumed by all to be a commercial sale. *Pfaff v. Wells Electronics Inc.*, 48 USPQ2d 1642 at 1643-1645. Applicants assert that, under the facts in the instant case, the evidence shows that the intent of the inventors was to determine whether the materials could be used for the intended purpose in the use environment.

Regarding the experimental nature of the trial, the following discusses the Crofoot declaration, refers to its attachments and discusses additional documents (copies attached to this paper) that detail the experimental trials from January of 1999 through December of 1999, the critical period for this application. The parent provisional application was filed in September of 2000. As long as the actions of Donaldson Company, Inc. during this period were considered experimental, then they cannot act as a prior art event under 35 U.S.C. § 102. The polymer material did not leave the premises of Donaldson Company, Inc. until the individual filter units were distributed to the experimental test locations in April of 1999. Accordingly, there can be no prior art event prior to April 1999; however, as detailed in the following documents, the trial,

conducted from April 1999 through about November 1999, was entirely experimental as evidence by the following documents.

Exhibit 1 (Exhibits 1-5 are dated January of 1999 ) is an e-mail indicating that the **trial** using the new polymer would be conducted and that the **polymer material on the media would be controlled and tracked using labels** that would identify the material. In case an:

> "... element is returned from the field, I can determine if it was manufactured using FP2-X."

The new polymer material was FP2-X.

Exhibit 2, similarly shows that the rolls of media using the new polymer will be **marked with a red band and a label indicating the use of the experimental material** and that any returned material will be identified as the experimental units.

Exhibit 3, similarly shows that the trial was considered a **temporary use to determine and evaluate the media**. The memo shows that personnel:

> " ... will track the use of the rolls by listing the roll number with the time and date of production. Since the elements have a time/date stamp, any returned elements can be linked with the LH type ... "

Exhibit 4, similarly shows the planning for the experimental trial to:

> " ... evaluate new fine fiber type ... "

and that the personnel are to:

> " ... log roll numbers used on production runs for tracking purposes."

Exhibit 5, shows that, as of the date of the exhibit, the fine fiber media was clearly under development, was not commercial and had not completed its "probationary" trial.

Exhibit 6, dated February of 1999, shows that the internal use of the material would was still considered a "trial" of the new material on different media layers.

Exhibit 7, dated March of 1999, shows that the material was still considered on a trial basis and that suitability for commercial production had not been demonstrated.

Exhibit 8, dated October of 1999, shows that the material was still considered on a trial basis and that suitability for commercial production had not been demonstrated.

Exhibit 9, dated December of 1999, shows that the project was "experimental," that the "viability" of the production technology for the polymer required a demonstration and that commercial production had not begun.

Clearly, as of December 1999, three months after the critical date for the instant application, the material remained experimental and was in a "trial" basis. The material was not approved for commercial production until August of 2001 (see ¶7 and Attachment 5 of the Supplemental Crofoot Declaration) at which time it was approved for production and used in a number of filter media structures. Between December of 1999 and August of 2001, no activity outside Donaldson Company, Inc. occurred other than the trial of the materials at the trial sites. The trial was successful and the materials were discarded at the trial locus.

**a. The Trial Was An Experiment To Determine Whether The Fiber Could Be Made Into A Filter And To Determine If The Fiber Could Survive Actual Operating Conditions**

The totality of circumstances shows that an experimental trial was required to prove that the fine fiber material could be made into a filter and that the filter would survive the harsh use environments. Applicants, through their employer and assignee of this application, Donaldson Company Inc., conducted an experimental manufacturing and use trial of the claimed invention, a fine fiber filter material in an air filtration cartridge, in order to complete the invention by proving that the invention was operable under actual use conditions before commercialization could commence. The experimental trial was conducted from April 1999 through the end of the year and was conducted in the only manner available to Donaldson Company Inc. that could obtain meaningful experimental results in the application. Applicants utilized five customer facilities to determine if their new fine fiber material would work for its intended purpose -- to provide air filtration properties for a power generation station turbine over a broad range of operating and environmental conditions. The reality of the power generation industry necessitated Applicants' method of experimentation, which minimized the customer awareness of the experimentation. At the end of the useful lifetime of the filters (late 1999), the filters were discarded, and commercial operations did not resume with this fine fiber material until after September 2002. This type of experimentation was reasonable in view of Applicants' experimental purpose.

The relevant factors indicative of experimental purpose support a finding that the experimental use exception applies in this case. See MPEP § 2133.03(e)(4) (listing the factors indicative of an experimental purpose). Each factor is discussed in turn below.

**b. The Invention Was Never Detectable by the Power Station Workers and Was Never Exposed To The Public**

The invention was never exposed to the public but was used only in power generation facilities not open to public inspection. Further, the nature of the invention is that the materials cannot be seen or identified by a simple inspection of the filter. The fine fiber layer is made of nano-sized fiber spun on a conventional non-woven media layer and cannot be seen without photo- or electron microscopy. The identity of the polymer cannot be determined without removing a sample from the filter and subjecting it to advanced instrumental analysis. The operating personnel at the installation would be entirely unaware of the material even if the filters were closely inspected.

**c. Applicants Conducted Their Tests in the Only Manner Possible Under the Circumstances**

**i. Applicants Had to Test the Invention at Customer Facilities**

The nature of the claimed invention necessitated at least some actual use testing in an operating facility before the invention could be considered to be completed. See *Kolmes v. World Fibers Corp.*, 41 USPQ2d 1829 at 1833 (Fed Cir 1997). In the filtration arts, and in the application of nano-fiber materials to filtration technology, laboratory testing can roughly differentiate between candidate filters but cannot accurately predict actual use success or performance. Applicants do not operate any power generation facilities in which the experimental fine fiber material could be tested in its intended environment. Applicants chose a limited set of five customers out of over one thousand of its turbine power plant filter customers to determine if the invention worked in its intended environment under varied operation and environmental conditions. The accessibility of the five customer sites was limited to employees of those customers and was not accessible to the general public. (see ¶16 of the Supplemental Crofoot Declaration)

**ii. Applicants Had To Limit Customer Awareness Of The Experimentation**

First, the trial must be conducted as a blind trial to obtain reliable data. Knowledge by the operating personnel could compromise the usefulness of the data.

Second, Applicants' customers are reluctant to allow experimentation at a power generation facility because any equipment failure or loss of efficiency can result in significant monetary losses. For example, a power plant can lose $3,000 a minute if a power generator looses substantial efficiency. With this backdrop, Applicants could not inform the five selected customers about the experiments because those customers could have affected the outcome of the trial and would not want to risk any loss in power generation.

Had Applicants informed the five experimental customers of the testing through direct or indirect means, those customers would have likely refused to participate in the experiments. For example, if Applicants changed the filter pricing, asked for a confidentiality agreement, asked that the experimental filters be monitored or treated any differently than other filters, or otherwise indicated that experimental filters were different, the experiment would not have occurred. Applicants chose not to take the risk that the customers would refuse the testing to ensure that experimentation did occur. Based upon prior experience with customers, Applicants believed that they approached their experimentation in the only way possible to achieve their experimental purpose. (see ¶17 and Attachment 5 of the Supplemental Crofoot Declaration)

**iii. Applicant's Were in Effective Control of the Experiment**

The reality of the power generation industry limited Applicants' choices for their experimentation on the new fine fiber material. Donaldson Company Inc. had no capacity to test the filters under use conditions and needed a test facility with the right environmental conditions. Some actual use testing is often needed in an operating facility before the invention could be considered to be completed. *Kolmes*, 41 USPQ2d at 1833. The power generation customers were selected because Donaldson Company Inc. knew that the performance of the filter units, and hence the fiber performance, was monitored by customer turbine operating engineers on a minute-by-minute basis. Any change in turbine operation from a drop in filtration efficacy or capacity would draw immediate attention from the operators of the facility and would be

reported to Donaldson Company Inc. immediately. Donaldson Company Inc. could not obtain better control of the Experimental conditions if it had controlled the facility itself. In view of Applicant's knowledge of customer operation methods, Applicants had control over the experiments conducted at the five customer sites. Applicants specially marked and tracked filters containing the experimental fine fiber material. After marking, Applicants shipped the experimental units to their customers. See Exhibits 1 to 8 to this paper.

Conducting the experiment without customer knowledge was an important aspect of the trial. Customer knowledge of the trial may have altered the customers' actions in operating the turbine unit and negatively affected the results. Upon receipt of the filters having the experimental fine fibers, the customers would not have had any reason to believe or investigate into whether the material was new or different. Applicants did not identify the filters differently and the differences between the old and new fine fiber layers in the filters were not visible upon inspection of the filter units. Based upon this, the five customers would have treated the experimental filters like all other filters so as to maximize profit. This ensured that the experimental filters were exposed to real environmental conditions and were exposed to actual operating conditions.

Applicants made their selection of the five experimental customers because those customers were known to closely monitor power generator performance. The experimental customers' minute-by-minute monitoring of their power generation turbines would show if a problem (increased pressure drop, reduced airflow or efficiency, or difficulty in pulse cleaning was resulting from poor filter performance) existed with the experimental filters. The potential loss in revenue due to power generator downtime, which is discussed above, is reason enough for the five experimental customers to closely monitor performance.

Any filter that did not perform to the expectations of any the five customers would have been returned to the Applicants. The special identification numbers could then be used to identify that an experimental filter did not perform for its intended purpose in its intended environment. Suppl. Decl. Crofoot ¶3, Attachment 2.

The inventor's control over the invention is identical to the control exercised by the inventors in the facts of the experimental use found in *EZ Dock Inc. v. Schafer Systems Inc.*, 61 USPQ2d 1298 (Fed. Cir. 1997). The dock in *EZ Dock* was sold to a user who installed it on his property on the shore of the Mississippi and used is as designed. In *EZ Dock* the sale was found

to be primarily experimental and not commercial. The inventors also had similar control over the use testing as in the facts of *Kolmes*, 41 USPQ2d at 1833.

If Applicants requested that the five experimental customers make sure that all spent filters within a particular lot number be returned, this would have been beyond the scope of the pre-existing commercial relationship. The undesired result of alerting the five customers that something was different about those filters would be a refusal to participate in the experimentation.

**iv. Applicants Did Not Charge Customers for the Experimental Fine Fiber Material**

Donaldson Company Inc. expended large sums of money to produce the experimental fine fiber material. However, over the experimental period, Applicants never charged the five experimental customers for the experimentation or for the cost of the added fine fiber material. Donaldson charged the five experimental customers the same price for the filters that included the experimental fine fiber as it had been charging those customers for the old fine fiber filters. Suppl. Decl. Crofoot ¶8. Further, any increase in charges for the experimental material would have alerted the five experimental customers that testing was occurring, which was a result Applicants did not want to achieve.

**v. Applicants Limited the Extent of the Alleged Use To The Required Use of the Invention**

Although some experimentation on the fine fiber product had to be conducted at customer facilities, Applicants limited: (1) the extent of the distribution of experimental fine fiber filters; and (2) the time of the experimentation.

First, in such an experiment, all filters in an installation must be identical to obtain reliable data. These filters are used in large banks of multiple filters to filter large volumes of turbine intake air. One entire installation could require 300 to 600 filters for a full installation. Each location could have one, two or more turbine installations. Applicants limited the experimentation to five customers to which Applicants shipped less than 2 percent of Donaldson Company Inc.'s total weight of manufactured media in 1999. Applicants had to manufacture and ship a critical number, approximately 3,000 filters (about 600 per customer) that included the

experimental fine fiber, to obtain useful manufacturing and operational testing data. If Applicants made and used less than 3,000 filters, the data might not have been reliable because 300-600 filters are typically being used at a power plant at any given time. A sufficient number of filters were needed in the experiment to provide reliable manufacturing and use data that demonstrated the new material could be used in manufacturing and could work in its intended environment. Suppl. Decl. Crofoot ¶13.

Second, Applicants only conducted the experiments from April through November 1999. Once the initial trial was completed, commercial operations did not resume until late in September 2000. This correlates to the first shipment of media that included the experimental fine fiber material and the time it typically takes a power generation station to exhaust the supply of shipped filters. Suppl. Decl. Crofoot ¶ 7, Attachment 5.

**vi. Applicants' Test Conditions Were Varied**

Contrary to the Examiner's assertion, Applicants chose a varied cross-section of environmental conditions for the testing, including hot versus cold combined with dry versus humid climates. Applicants wanted to establish that the experimental units would function effectively in a wide variety of environmental conditions.

The five experimental sites were Saudi Arabia (hot and dry); Santiago, Chile (cool and humid); Elwood, Illinois (hot and humid); Belle River, Michigan (hot and humid); and San Diego (mild temperature and humid). These sites represent a diverse set of climatic and particulate conditions, which all relate to the intended environment and purpose of the experimental fine fiber.

For example, from May through November 1999, San Diego's average temperature ranged from 57 to 69 degrees Fahrenheit. The average relative humidity in San Diego typically reaches 82 percent during the months of May through November. In Joliet and Chicago, Illinois, which are near Elwood, the average high temperature for July 1999 was above 78 degrees Fahrenheit and the average relative humidity typically reaches 86 percent, respectively. In Santiago, Chile, the average temperature ranges from 47 to 63 degrees Fahrenheit from May through November and the average morning relative humidity reaches 95 percent in July and August. Saudi Arabia is hot and dry during the majority of the year. Further, this test locus has large quantities of particulates such as sand that are not found in any of the other selected sites.

Regardless of the actual conditions during May to November 1999, this diversity in climatic conditions demonstrates Applicants' desire to select locations with varied climatic conditions, including hot and humid locations.

### vii. Applicants Did Not Commercially Exploit the New Fine Fiber Material Until After the Critical Date

Applicants did not start selling the new fine fiber material commercially until a year after the experimentation period ended (after September 2000). Applicants did not display samples of the new fine fiber, demonstrate models or prototypes, or advertise the new material until after the critical date of the patent. There was no attempt to penetrate the market with the shipments to the five customers because Applicants did not want anyone, including the recipient, to know that the new fine fiber material was being tested. Suppl. Decl. Crofoot ¶ 7, Attachment 5.

Clearly, as of December 1999, three months after the critical date for the instant application, the material remained experimental and was in a "trial" basis. The material was not approved for commercial production until August of 2001 (see Suppl. Dec. Crofoot, ¶7 and Attachment 5), at which time it was approved for production and used in a number of filter media structures. Between December of 1999 and August of 2001, no activity outside Donaldson Company, Inc. occurred other than the trial of the materials at the trial sites. The trial was successful and the materials were discarded at the trial locus.

## II. Applicants Did Not "Complete" the Invention in the New Fine Fiber Material Until After the Critical Date and the Invention was not Ready for Patenting

The second part of the *Pfaff* test relates to whether the invention was ready for patenting. The invention was not ready for patenting because it was not complete until the trial was complete. Contrary to the Examiner's position, the Applicants did not "complete" the invention in the new fine fiber material prior to the experimental trial. The trial demonstrated that the material could be used for its intended purpose in its intended environment. Before the trial, Applicants had only made small amounts of laboratory samples for laboratory testing. At the time the Applicants shipped the experimental filters to the five test sites, Applicants had no data that showed that the fine fiber of the invention could be manufactured into a filter unit and that

the resulting filter could survive actual use conditions. The results from the experiments on the new fine fiber were used to determine if the fiber would perform its intended purpose of filtration in its intended environments.

In the Examiner comments, the Examiner takes the position that the invention was "completed" before the experimental trial. In this regard, the Examiner appears to refer to the *Pfaff* case. In the *Pfaff* case, the court held that once the invention was "complete" and offered for sale, that the on sale bar was triggered. However, in the instant case the invention was not "complete" as the invention was in *Pfaff*. The facts of the experimental use of the fine fiber filter structures of the invention are different than the facts in *Pfaff*. These facts are important differences and would reverse the findings of the court. In *Pfaff*, the invention was clearly completed, no experimentation was required and the only thing necessary to make a working model of the invention was to develop the tooling and run the production of the socket. While the court does discuss certain testing that the inventor considered important, it is clear that the court decided that the drawings and other developmental aspects had completed the invention since it would work exactly as expected by the inventors.

In the case at hand, the facts are clearly the opposite. The experiments done by the inventors in the laboratory were sufficient to roughly rank filtration properties of the structures according to the laboratory tests. These tests, however, would not predict whether the fine fiber material could survive manufacturing conditions during the manufacture of a filter and placement of the filter media in a cartridge. Further and more importantly, the laboratory test could not predict whether the fine fiber material would survive the varied conditions of temperature, humidity and particulate faced by the filters when used under actual filtration conditions in a power plant. The invention could not be considered completed until data showed that the material could be manufactured and used as intended in its intended environment. This is particularly true in light of the fact that prior to the experimental use of this polymer, previous versions of the fine fiber material were known to fail under conditions of heat or humidity.

The *Pfaff* case clearly states:

> Nevertheless an inventor who seeks to perfect his discovery may conduct extensive testing without losing his right to obtain a patent for his invention - even if such testing occurs in the public eye. The law has long recognized the distinction between invention put to experimental use and products sold commercially...
> *Pfaff v. Wells Electronics Inc.*, 48 USPQ2d 1641 at 1645

Applicants assert that under the facts of *Pfaff* the use was experimental and was not complete until the fine fiber was proved to have sufficient properties to be patentable over the prior art fine fiber. Clearly the material was not ready for patenting until that proof occurred. The facts in the *Pfaff* case clearly indicate that in order for material or an invention to be ready for patenting the invention must be shown to work as designed in the intended environment.

The experimental nature of the trials was further explained by the Federal Circuit in *EZ Dock Inc. v. Schafer Systems Inc.*, 61 USPQ2d 1289 (Fed. Cir. 2002). The facts of the experimental trial in *EZ Dock* and the facts of the experimental trial in the instant case are markedly similar. As is true in *EZ Dock*, Applicants did not have the invention "for sale" in a commercial sense. The Applicants did not charge for the fine fiber aspect of the filters and the filters were distributed to test whether the filters could hold up under the harsh environmental conditions of temperature and humidity. In *EZ Dock,* the Federal Circuit cites with approval *Gould Inc. v. United States,* 198 USPQ 156 which states that the purpose of a transaction to ensure that the article was "capable of performing its intended purpose in its intended environment." qualifies as a experimental use. *Gould Inc. v. United States*, 198 USPQ 156 at 164. *EZ Dock* 61 USPQ2d at 1292-1293, states:

> [2] This focus on the requirements for a statutory bar, however, could raise questions about the effect of the Supreme Court's recent clarifications of the standards for a statutory bar on the proof of experimentation adequate to negate the bar. In *Pfaff*, the Supreme Court expressly preserved the experimental use or sale negation of the section 102 bars: "Nevertheless, an inventor who seeks to perfect his discovery may conduct extensive testing without losing his right to obtain a patent for his invention -- even if such testing occurs in the public eye. The law has long recognized the distinction between inventions put to experimental use and products sold commercially." *Pfaff*, 525 U.S. at 64. Experimentation evidence includes "tests needed to convince [the inventor] that the invention is capable of performing its intended purpose in its intended environment." *Gould Inc. v. United States*, 579 F.2d 571, 583, 198 USPQ 156, 167 (Ct. Cl. 1978); *Kolmes v. World Fibers Corp.*, 107 F.3d 1534, 1540, 41 USPQ2d 1829, 1833 (Fed. Cir. 1997) ("testing was...required in such an environment in order to ensure that the invention would work for its intended purpose"). Indeed in *Pfaff*, the Supreme Court reiterated its guidance in *City of Elizabeth v. American Nicholson Pavement Co.*, 97 U.S. 126, 137 (1877), that an inventor does not

> inappropriately delay filing "by a bona fide effort to bring his invention to perfection, or to ascertain whether it will answer the purpose intended." *Pfaff*, 525 U.S. at 64-65. Thus, the Supreme court and this court apply the experimental use negation without conflict with the "ready for patenting" prong of the new on-sale bar test. Indeed as noted earlier, the Supreme Court acknowledged that a litigant may show readiness for patenting with evidence of reduction to practice. Like evidence of experimentation sufficient to negate a bar, reduction to practice involves proof that an invention will work for its intended purpose. *Scott v. Finney*, 34 F.3d 1058, 1061, 32 USPQ2d 1115 (Fed. Cir. 1994). Even beyond this overlap of the experimental use negation and the ready for patenting standard, however, the Supreme Court explicitly preserved proof of experimentation as a negation of statutory bars.

In the Examiner's comments, the Examiner focuses on "control" of the invention. The control made by the inventors in the *EZ Dock Inc.* case is virtually identical to the extent of control of the inventors in the instant case. As shown in the documents discussed above, the inventors had identified the filters tested in the experimental use by a unique numbering system. The inventors left the filters at the testing site for the purpose of seeing whether the filters succeeded or failed for their intended purpose. Such are the facts of the *EZ Dock Inc.* case where the inventors left the dock in the possession of the person using the experimental unit to determine whether the dock would succeed or fail in its intended purpose. During the trials in the instant case and in the case in *EZ Dock Inc.*, the tester had almost total control of the invention that was out of the possession of the inventors during the entire experimental use. Analogous to the facts of *EZ Dock* Applicants had effective control over the filters of the experimental use during the trial. Applicant's marking of the experimental units gave them sufficient control over the units such that they monitored any failures. Since the experimental use cannot be used for rejection of the claims, this rejection must be withdrawn.

In summary, Applicants have satisfied the *Pfaff* tests regarding experimental use. The invention was entirely experimental and was not complete or ready to be patented under the *Pfaff* tests. Sufficient evidence had not been gathered to show that the fine fiber had improved properties with respect to the prior art materials or that it could act in its intended use in its intended environment. The totality of the circumstances shows experimental use since the Applicants conducted a single manufacturing trial for making the fiber, a single manufacturing trial for adding fiber to the media, a single trial to make the filter and a single use trial for the

filter units. Once the trials were complete, no activity outside Donaldson Company, Inc. occurred until the material was commercialized in September of 2001. No public activity occurred. Applicants provided the filters to customers known to maintain their operating facilities without public contact and under minute-by-minute control to ensure the fibers performed adequately. Control was maintained over the units by recording the information useful to track the filters during the use trial. A single test was conducted over a period of about nine months, the useful life of the filter units. Once the test was complete, the units were discarded. Lastly, no payment was made for the fine fiber portion of the filters. Payment was only taken to reimburse Applicants for the cost of the conventional portion of the invention. Applicants have satisfied the considerations regarding experimental use under the *Pfaff* test, since sufficient testing had not been done to show that the fine fiber worked for the intended purpose in the intended environment.

## CONCLUSION

In summary, Applicants have satisfied the important considerations important regarding experimental use. The invention was clearly not complete or ready to be patented under the PFFAF test, since sufficient evidence had not been gathered to show that the fine fiber had improved properties with respect to the prior art materials. The totality of the circumstances shows experimental use, since the Applicants conducted a single manufacturing trial for the fiber, a single manufacturing trial for the filter and a single use trial for the filter unit. Once the trials were complete, no activity outside Donaldson Company, Inc. occurred until the material was commercialized in September of 2001. No public activity occurred. Applicants provided the filters to customers known to maintain their operating facilities without public contact and under minute-by-minute control to ensure the fibers performed adequately. A single test was conducted over a period of about nine months, the useful life of the filter units. Once the test was complete, the units were discarded. Lastly, no payment was made for the fine fiber portion of the filters. Payment was only taken to reimburse Applicants for the cost of the conventional portion of the invention.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

Respectfully submitted,

24 July '03
Date

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E-mail: mdipietro@merchant-gould.com

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OIPE
JUL 28 2003
PATENT & TRADEMARK OFFICE

**RESPONSE UNDER 37 C.F.R. 1.116**
**EXPEDITED PROCEDURE**
**EXAMINING GROUP 1724**

S/N 09/871,156

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | | | |
|---|---|---|---|
| Applicant: | BENSON et al. | Examiner: | JASON M. GREENE |
| Serial No.: | 09/871,156 | Group Art Unit: | 1724 |
| Filed: | 05/31/2001 | Docket No.: | 758.1226US01 |
| Confirmation No. | 7441 | | |
| Title: | FILTER STRUCTURE WITH TWO OR MORE LAYERS OF FINE FIBER HAVING EXTENDED USEFUL SERVICE LIFE | | |

## DECLARATION OF BRAD KAHLBAUGH

1. I am an inventor in Kahlbaugh et al., U.S. Patent No. 5,672,399. I am experienced in the development of composite materials used in forming filter structures using polymer fiber, media and other construction materials.

2. I have reviewed Teague et al., U.S. Patent No. 5,409,513 and am familiar with my own invention in Kahlbaugh et al, U.S. Patent No. 5,672,399.

3. The Teague et al. reference is a "candle filter" to remove particulate from effluent derived from a nylon fiber spinning operation. In Teague 5,409,513, either a gas or liquid flow streams may carry particulate to candle filters.

The Teague et al. patent discloses the following in Column 5, lines 21 through 60:

a) a *variety* of media fiber materials

b) a *range* of media pore sizes, (1 to 50 μ)

c) a range of media fiber sizes, (0.1 to 20 μ) and

d) a range of media thickness values (25 to 127 mm)

One with ordinary skill in the art of filtration understands that filter media performance and characteristics are highly dependent upon how media components are arranged and combined. Teague does not teach how to select, combine, or arrange the components of candle filter media. From the Teague description, there is no basis to assert that candle filter media or candle filter media layers in Teague are not conventional.

4. The Kahlbaugh material, called VTF, is a unique material. The VTF described in U.S. Patent No. 5,672,399 uses a different structure, and functions differently, than other filtration media including candle filter media. The concept in the Kahlbaugh reference is that forming sufficient numbers of fine fiber filtration layers separated by coarse fiber non-filtration layers (typically a loose non-woven) can provide substantial advantages in filtration performance. The separated fine fiber layers can act as a barrier while avoiding the adverse effects of filter particulate build-up on any single layer. The VTF structure is a thin pleat-able "depth" loading design in which the fine fiber layers act as barriers to the passage of particulate. Particles removed by the fine fiber layers become held within the coarse fiber non-filtration layers that separate the fine fiber filtration layers.

5. The Benson application includes claims to a variation of a thin pleat-able filtration media with extremely thin layers of sub-micron fibers applied to its upstream and downstream surfaces.

- thickness of Benson thin pleat-able filtration media - 0.01 to 3.0 mm
- fiber diameter of Benson sub-micron fiber layer - 0.001 to 0.5 $\mu$
- thickness of Benson sub-micron fiber layer - $< 5\ \mu$
- pore size of Benson sub-micron fiber layer - $< 3\ \mu$

6. The Teague et al. reference does not disclose any important detail about the nature of the filtration media used in the candle filter of nylon processing equipment. The selection of an appropriate filtration media that would cooperate with nanofiber is an essential component of the invention. The claims recite characteristics of the media important in the selection. Teague et al. are silent regarding this important characteristic and cannot be held to teach the media characteristics that are important.

7. The Examiner should further understand that, using conventional technology available to engineers today, a separate nano-fiber layer could not be made apart from a substrate material. Effective filtration nano-fiber layers are thin, fragile layers having a very low basis weight made from fibers with a very small fiber diameter. Such materials are fragile and cannot be spun independently of a substrate and successfully used in a filtration structure.

8. The factual discussions set forth in this declaration leads me to conclude the following:

A. The layers in these references cannot be combined randomly, or arbitrarily, with any expectation of success.

B. By itself, pore size is insufficient to characterize the filter media of Teague, Kahlbaugh, or Benson.

C. The media used in the Teague et al. reference is a thick non pleat-able depth loading media suitable for use as a candle filter media.

D. Considerable investment of resources is required to make a single material suitable for use as a substrate for electro-spun fibers in filtration applications. Further, the know-how to do this is more than that of one with ordinary skill in the art of filtration.

9. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such false statements may jeopardize the validity of the application or any patent issued thereon.

Dated: 6/18/03

Brad E. Kahlbaugh

Brad Kahlbaugh

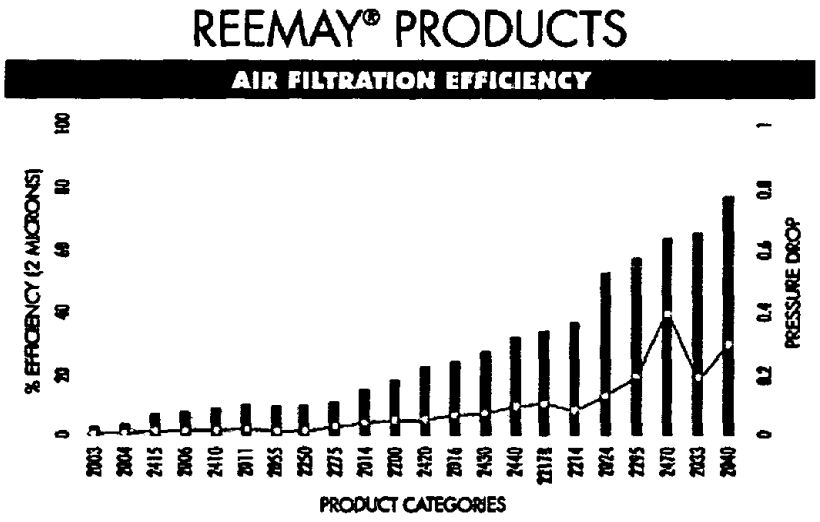
BBA FILTRATION®

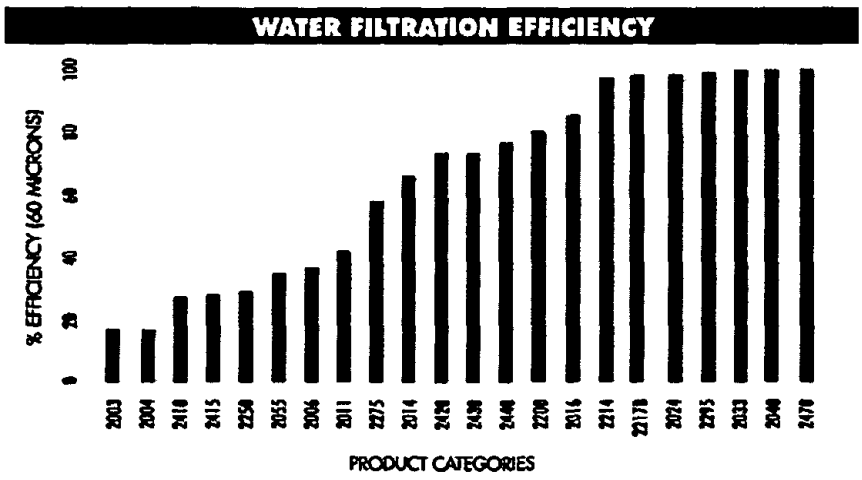
Technology Innovation Value

AGF TECHNOLOGIES
CUSTOMER CONTACT
LITERATURE LIBRARY
NEWSLETTER
PRESS RELEASES
PRODUCT DESCRIPTIONS
FIND A PRODUCT
PRODUCT PROPERTIES
REQUEST CUSTOM PRODUCTS
REQUEST E-MAILINGS
REQUEST SAMPLES
SITE MAP
SNOW FILTRATION
TRADE SHOW CALENDAR



## Product Properties



## REEMAY® FILTRATION GRADE SPUNBONDED POLYESTER

### Typical Properties*

| Style No. | Denier Per Filament | Filament Cross Section | Basis Weight oz/yd² | Basis Weight g/m² | Thickness mils | Grab Tensile lbs MD x XD | Trap Tear lbs MD x XD | Mullen Burst psi | Frazier Air Perm cfm/ft²@ 0.5" $H_2O$ | Textest† Air Perm cfm/ft² |
|---|---|---|---|---|---|---|---|---|---|---|
| **Straight Fibers** | | | | | | | | | | |
| 2003 | 4 | T | 0.35 | 12 | 4 | 8 x 5 | 2 x 3 | 8 | 1400 | — |
| 2004 | 4 | T | 0.40 | 14 | 5 | 16 x 9 | 3 x 3 | 9 | 1400 | 1526 |
| 2055 | 4 | T | 0.55 | 19 | 7 | 11 x 9 | 3 x 4 | N/A | 1200 | 1418 |
| 2006 | 4 | T | 0.60 | 20 | 7 | 10 x 8 | 4 x 5 | 13 | 1180 | — |
| 2011 | 4 | T | 0.75 | 25 | 9 | 16 x 14 | 6 x 6 | 16 | 1070 | — |
| 2014 | 4 | T | 1.00 | 34 | 10 | 21 x 17 | 6 x 7 | 22 | 880 | 863 |
| 2016 | 4 | T | 1.35 | 46 | 10 | 36 x 27 | 9 x 11 | 32 | 540 | — |
| 2024 | 4 | T | 2.10 | 71 | 12 | 62 x 52 | 9 x 11 | 52 | 310 | 339 |
| 2033 | 4 | T | 2.95 | 100 | 17 | 102 x 78 | 15 x 17 | N/A | 258 | 256 |
| 2040 | 4 | T | 4.00 | 136 | 20 | 125 x 100 | 14 x 19 | 99 | 190 | 174 |
| 2250 | 2.2 | R | 0.50 | 17 | 5 | 11 x 7 | 4 x 5 | 11 | 1080 | 1307 |
| 2275 | 2.2 | R | 0.75 | 25 | 6 | 15 x 14 | 6 x 7 | 17 | 868 | — |
| 2200 | 2.2 | R | 1.05 | 36 | 8 | 21 x 20 | 7 x 7 | 23 | 663 | — |
| 2214 | 2.2 | R | 1.35 | 46 | 9 | 32 x 30 | 9 x 10 | 28 | 521 | — |
| 2217B | 2.2 | R | 1.70 | 58 | 11 | 38 x 36 | 12 x 12 | N/A | 456 | — |
| 2295 | 2.2 | R | 2.95 | 100 | 18 | 75 x 71 | 23 x 24 | 74 | 250 | — |
| **Crimped Fibers** | | | | | | | | | | |
| 2410 | 4 | T | 1.15 | 39 | 14 | 15 x 11 | 7 x 8 | N/A | N/A | — |
| 2415 | 4 | T | 1.55 | 53 | 16 | 24 x 18 | 9 x 11 | N/A | N/A | — |
| 2420 | 4 | T | 1.85 | 63 | 17 | 30 x 22 | 11 x 13 | N/A | N/A | — |
| 2430 | 4 | T | 2.40 | 82 | 19 | 44 x 34 | 15 x 18 | N/A | N/A | — |
| 2440 | 4 | T | 2.90 | 98 | 21 | 56 x 42 | 18 x 23 | N/A | N/A | — |
| 2470 | 4 | T | 6.00 | 203 | 32 | 136 x 100 | 37 x 47 | 82 | 166 | — |

Note: 2000 Series Trilobal Fiber Diameter = 22 µ  2250 Series Round Fiber Diameter = 15 µ  2400 Series Trilobal Fiber Diameter = 20 µ  2800 Series Trilobal Fiber Diameter = 28 µ
T = Trilobal Cross Section  R = Round Cross Section

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SEARCH:

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Reemay, Synergex, Typar Filtration Media Typical Properties Sheet
PDF: 15kb 2 page document

For more information about available filtration media and services, please follow the links on this page, or e-mail us at info@BBAfiltration.com.



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EXHIBIT

[redacted]

**From:** [redacted]
**Sent:** Tuesday, January 19, 1999 3:05 PM
**To:** [redacted]
**Cc:**
**Subject:** [redacted] Evaluation

[redacted]

As we discussed, we are proceeding with a trial using FP2-X. [redacted] will produce two types of media, EN 07.01.283 and EN 07.01.346 to determine Plant 54 processing conditions needed for the new type of LH. We would prefer that the media be used in GTS orders but if needed, a small portion can be used to fill Torit orders. We also need to track the media by logging roll numbers used in your production runs. [redacted] return a copy of the log to me so that I can relate each roll of FP2-X with the element manufactured and the corresponding time and date stamp on the element.

[redacted] will place three labels on each roll of media. Each label will contain the following information:

ECO #: 99A4041
EN grade number: Either EN 07.01.283 or EN 07.01.346
Plane 54 DCI Roll Number
"Process with FP2-X"
"Contact [redacted] or QC for in process evaluation before use."

One of the tags will be in the core. The two other tags will be on the outside of the roll. You can remove one of the tags when the roll is used and adhere it to a log sheet which should also include the element part number, the time the roll was used (start and end corresponding to the time stamp on the element), and date. With this information, I will construct a log of elements manufactured from this media. [redacted] if an element is returned from the field, I can determine if it was manufactured using FP2-X.

Warren will also place a red band on each pallet of media. [redacted] will also advise us when he is ready to ship the media.

[redacted]

EXHIBIT

2

# Donaldson.

Manufacturing Engineering

MEMORANDUM

TO: Pleater Operators
cc: QC
[redacted]
Pleater Operators

at Cross

[redacted]

4/19

FROM: [redacted]

DATE: April 16, 1999

**SUBJECT:** Reminder: New fine fiber on EN07.01.283 and EN07.01.346

Per ECO 99A4041 there is a temporary deviation to allow the use of a new fine fiber coating on these LH medias. Rolls of media will be marked with a red band and a total of three labels that contain the following information:

ECO #: 99A4041
EN grade number: Either EN 07.01.283 or EN 07.01.346
Plane 54 DCI Roll Number
"Process with FP2-X"
"Contact Doug Svestka or QC for in process evaluation before use."

One of these labels will be on the inside core of the roll and two will be located on the outside of the roll. When this media is used on a particular run, one of the outside labels should be removed and [redacted] should be written on the label and returned to me [redacted] via the inbox on my desk. If there is only one tag on a partial roll of media, please transfer all run and roll information onto a separate piece of paper and then turn in to me. On a partial roll at the end of a run, please replace a label, place red band around the roll, and return it to stock.

THIS MEDIA MAY ONLY BE USED ON GTS ELEMENTS. It is preferred that this media is used to build GTS elements, but if needed, a small portion could be used to build Torit elements.

Here is a list of elements this media can be used in:

| | | | | | |
|---|---|---|---|---|---|
| P190949 | GTS | P191394 | GTS | P191701 | GTS |
| P190976 | GTS | P191399 | GTS | P191713 | GTS |
| P190977 | GTS | P191430 | GTS | P191731 | GTS |
| P191177 | GTS | P191431 | GTS | P191738 | GTS |
| P191178 | GTS | P191463 | GTS | P191748 | GTS |
| P191267 | Torit | P191494 | Torit | P191767 | GTS |
| P191280 | GTS | P191589 | GTS | P191845 | Torit |
| P191281 | GTS | P191595 | GTS | P778211 | Torit |
| P191292 | GTS | P191596 | GTS | | |
| P191293 | GTS | P191607 | GTS | | |
| P191310 | GTS | P191619 | GTS | | |

EXHIBIT

3

Donaldson

**ENGINEERING STANDARDS PROPOSAL**

**CHANGE CURRENT STANDARD** __X__

**NEW STANDARD** _____

**Proposal Date: 01/01/99**

**NUMBER:** EN07.01.346 & EN07.01.283

**To :** [redacted] -144 :
Engineering
Standards

**Check Recommended Change Class:**
1 ___ = Mandatory on all Shipments
2 ___ = On all Future Production
4 ___ = Phase -In (6 months)
6 ___ = Phase -In (1 Year)
7 ___ = Cancelation
8 ___ = Record Change
9 ___ = As Directed On ESO

**Temporary** _X___ **Permanent** _____

| | | |
|---|---|---|
| **Originator:** | [redacted] | **Date ESO Needed:** |
| **Mail Station:** | 341 | **All Shipments As Of:** |
| **Department Name:** | Industrial Development | **All Production As Of:** |
| **Dept./Plant Number:** | Cresco/004 | **Customer Affected: Primarily GTS** |
| | | **Customer Approval Reqd.?: no** |

***DESCRIPTION OF REQUEST:***

This temporary ESO would allow the production and use of FP2-X as a replacement for FP1-7 for 25,000 lbs plus previous trial rolls of EN 07.01.346 and 5,000 lbs plus previous trial rolls of EN 07.01.283. All media, base sheet and LH, meet current EN standards. The media would primarily be used in GTS elements but some may be used in Torit elements. [redacted] will track the use of the rolls by using the roll number with the time and date of production. [redacted] the elements have an [redacted] stamp any returned elements can be linked with the LH type.

**REASON FOR REQUEST:**

Evaluation of a new LH type, FP2-X, requires Plant 54 production time. Recent evaluations indicate that the LH type is equal to or superior to FP1-7 (attached). Processing the media through Plant 54 would help determine the production capabilities of this new type. Use in a variety of customer sites will help confirm performance.

| **Date Received:** | **Date Returned:** | **Estimated Publication Date:** |
|---|---|---|
| | | |

**Coordinator:** JACK CARLSON

## APPROVALS

| Name: | Function: | Approved ? Y/N: | Date: |
|---|---|---|---|
| [redacted] | GTS ENG. MNG. | YES | 16 Dec 98 |
| [redacted] | Torit | yes | 29 Dec 98 |
| | | | |
| | | | |

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EXHIBIT

4

AUTHORIZATION: 99A4041
SHEET 1 OF 1

ENGINEERING STANDARDS CHANGE ORDER

DONALDSON COMPANY, INC.
MINNEAPOLIS, MN 55440
ENGINEERING STANDARDS

---

AUTHORIZED AS OF: 1-4-99 ( ) PERMANENT (X) TEMPORARY

ORIGINATOR: [redacted]-341
DISTRIBUTE TO: [redacted]-445, [redacted]-205, [redacted]-365
[redacted]004, [redacted]004, [redacted]-365,
[redacted]-004, [redacted]-445
ESO CLASSIFICATION:

( ) 1 ALL SHIPMENTS AS OF:
( ) 2 ALL PRODUCTION AS OF:
( ) 4 WHEN NEW IS AVAILABLE OR WITHIN 6 MOS.
( ) 6 PHASE IN, PHASE OUT WITHIN 12 MOS.
( ) 7 CANCELATION, DEPLETE INVENTORY
( ) 8 UPDATE RECORDS ONLY
(X) 9 AS DIRECTED BY ESO DESCRIPTION

ESTIMATED SAVINGS/COST: --

NPR # OR ECO # AFFECTED: --

ENGINEERING STANDARDS : [redacted]

---

REASON FOR CHANGE: TO EVALUATE NEW FINE FIBER TYPE.

---

DESCRIPTION OF CHANGE:

EN07.01.346 AND EN07.01.283 FILTER MEDIA SPECIFICATIONS ARE BEING TEMPORARILY DEVIATED TO ALLOW THE USE OF FP2-X FINE FIBER COATING IN PLACE OF FP1-7 FOR THE FOLLOWING QUANTITIES:

25000 LB. OF EN07.01.346 TO BE RUN JANUARY, 1999 PLUS PREVIOUS TRIAL ROLLS
5000 L. OF EN07.01.283 TO BE RUN JANUARY, 1999 PLUS PREVIOUS TRIAL ROLLS.

THE MATERIAL CAN ONLY BE USED IN TORIT AND GTS PRODUCTS. CRESCO TO LOG ROLL NUMBERS USED ON PRODUCTION RUNS FOR TRACKING PURPOSES.

** END OF AUTHORIZATION **

EXHIBIT

5

# FY'98 FINE FIBER CORE PROGRAM

## Fine Fiber Core Plan

### I. Development of existing and emerging fine fiber media grades

Objective: Insure that new media grades developed over the earlier phases of the fine fiber program successfully transition to full scale production. Likely applications include;

- FP2X for GTS and Engine applications for extended exposure to moisture and temperature
- Phase in of FP2X to replace FP1-7 and FP1 to increase quality and reduce manufacturing cost
- Support phase in of FP1-7 media for Torit where required
- Support next generation pulse cleaned media programs with equipment and pilot trials
- Supply lab samples of VTF media for lab and field evaluation

Deliverables:

- Quantify important / critical limits for the variables that affect finished product attributes. (e.g. polymer recipes, fiber physical limitations, known substrate effects, abrasion and temperature.....)
- Provide data quantifying what can be expected when physical limits are violated
- Provide material samples to the BU for product evaluation

Progress to date:

**FP2X for GTS** - An FP2X [redacted] production trial of about 10,000 lbs. was scheduled in plant 54 to allow manufacturing and AMT additional experience from which to make cost and operational predictions. Polymer is from CT supply. This media will be used as standard [redacted] marked in some way that we can identify them should the need arise. The run was scheduled for the week of Dec 7 but has been pushed back a month because of staffing problems, (complete vacations by Jan 1) and production demand. It is now scheduled to start the week of Jan 11. A couple of rolls will be run that week with the remainder to be done the following week.

The following testing was done by Industrial Group Engineering to confirm this material [redacted] as a substitution for commercial inventory: Evaluate the relative element performance of two different LH treatments, current FP1-7 versus a new design FP2-X, using two different media, EN-346 & EN-283 in a production Downflo II test system.

[redacted] reports the following conclusions: Their is no significant difference in pressure drop after 500 hours of continuous running between the two types of LH. Attached is [redacted] report.

fp2down_.doc

EXHIBIT

6

# Donaldson® Corporate Technology

## DCI Confidential

February 19, 1999

To: [redacted] cc: [redacted]

From: [redacted]

Subject: [redacted]

At the request of GTS, a trial was conducted by Plant 54 to see if it was feasible to apply the LH Fine Fiber layer to both sides of EN7.1.317 substrate. The reason for this is to try to increase the efficiency of the media with only a slight increase in permeability and also by having two lighter layers of LH we would not see the filming that is associated with heavy LH layers exposed to high hydrocarbon environments.

Currently, this requires that the media be run through the LH process twice. In the first run the LH is applied and post-treated as with all media, but for the second run, the first LH layer now comes in contact with several rollers and the collector surface. This raises the question of what if any damage to the LH layer is caused by this contact and what damage is caused by the two LH layers in contact with each other after it is re-wound.

Another concern is that the media is run through the process both times in the same orientation, i.e., the operator side of the media is the same for both runs. This means that CMD uniformity is an issue. If the efficiency in the CMD is non-uniform after the first run it will be compounded after the second run.

Two trials were conducted. In the first trial, the first LH layer was applied to the felt side. During this trial, there was a polymer pump failure that effected the coverage so the trial was repeated. For the second trial [redacted] of GTS requested that the first layer be applied to the wire side, so that any damage caused to this layer during the second run would be on the downstream side of the element.

The following tables show the results of both of the trials. LH layer efficiency was also calculated to see how much LH is being applied for each run.

EXHIBIT

7

# Donaldson.

Gas Turbine System
Product Engineering

**MEMORANDUM**

TO: [redacted] 205
206
206
205

cc:

FROM: [redacted]

DATE: March 29, 1999

**SUBJECT:** EX 574 dual sided fine fiber

Attached are the fractional efficiency results form the second media trial. The test were conducted by LMS Technologies Inc. The results are concerning to me. The wide scatter of the results and the lower than expected values in the 2-3 μm range lead me to question the usefulness of these results. **Please comment**. Note that samples from a production run of '283 were also tested for comparison. These results are also concerning.

I reviewed the results with LMS and they felt they are valid. To conduct a flat sheet test, they adapt their filter fixture -- I feel this will induce some error -- flow distribution. sealing, concentration and alike.

Bruce, what is the current status of the flat sheet DAPS? We need to be able to evaluate our products and developmental projects with methods and instruments that we have confidence in the result.

In spite of these concerning results, plant 54 has completed a production size trial of this media. Warren please forward LEFS results. This media will shipped to Frankfort for pleating trials and fabrication of prototype filters. This trial will need to be evaluated and I am looking for recommended tests [fract eff. - inside/out side.....]

Any and all comments are appreciated.

Donaldson

EXHIBIT 8

**ENGINE ING STANDARDS PROPOSAL**
**CHANGE CURRENT STANDARD __X__**
**NEW STANDARD _____**

**Proposal Date: 10/25/99**

**NUMBER: EN07.01.346 & EN07.01.283**
2000A4027

**To :** [redacted] :
Engineering
Standards

**Check Recommended Change Class:**
1 ___ = Mandatory on all Shipments
2 ___ = On all Future Production
4 ___ = Phase -In (6 months)
6 ___ = Phase -In (1 Year)
7 ___ = Cancelation
8 ___ = Record Change
9 ___ = As Directed On ESO

**Temporary** _X___ **Permanent** ____

| | | |
|---|---|---|
| **Originator:** | [redacted] | **Date ESO Needed:** |
| **Mail Station:** | 341 | **All Shipments As Of:** |
| **Department Name:** | Industrial Development | **All Production As Of:** |
| **Dept./Plant Number:** | Cresco/004 | **Customer Affected: Primarily GTS** |
| | | **Customer Approval Reqd.?: no** |

**DESCRIPTION OF REQUEST:**
This temporary ESO would allow the production and use of FP2-X as a replacement for FP1-7 for two, 25,000 lbs trial runs of EN 0701346 and two, 5,000 lbs trial runs of EN 07.01.283. All media, base sheet and LH, will meet current EN standards. The media would primarily be used in GTS elements but some may be used in Torit elements. Cresco will track the use of the rolls by listing the roll number with the time and date of production and evaluate post pleating properties.

**REASON FOR REQUEST:**
Evaluation of a new LH type, FP2-X, requires additional Plant 54 production time. Recent evaluations, including a trial run in 02/99, indicates that this LH type is equal to or superior to FP1-7. Processing the media through Plant 54 would help confirm the production capabilities of this new type. These two runs will be used as probationary runs for 100% conversion in March 2,000.

**Date Received:** **Date Returned:** **Estimated Publication Date:**

**Coordinator:** [redacted]

## APPROVALS

| Name: | Function: | Approved ? Y/N: | Date: |
|---|---|---|---|
| [redacted] | Eng. Mg. GTS | Yes [redacted] | 11-9-99 |
| | Eng. Mg. Torit | YES | 10/26/99 |
| | | | |
| | | | |

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EXHIBIT

9

CT Specialties
CORPORATION

December 20, 1999

VIA TELEFAX (612-887-3937)
& FIRST CLASS MAIL

[redacted]
Donaldson Corp.
Corporate Technology
P. O. Box 1299
Minneapolis MN 55440

Dear John:

As we discussed, CT Specialties is preparing for a new campaign for the trial production of FP 2 Polymer. On the basis of the experimental work performed at Pressure Chemical during December, we believe that we will be able to meet your quality requirements during this next campaign.

We understand that Donaldson would first like to perform one run at CT Specialties to produce 1,000 pounds of FP 2 Polymer. This run, which will occur in January, will demonstrate the [redacted] viability of the revised process. There will then be a hiatus of approximately four weeks while Donaldson tests the product. At the conclusion of the hiatus, CTS will perform a four-run campaign with modifications, if any, learned from the January run.

We further understand that the long term requirement for FP 2 Polymer might be in the neighborhood of 40,000 to 60,000 pounds per year. On the basis of these projections, we are pleased to offer the following proposal.

The price for a four-run campaign is **$35 per pound** of polymer produced. If we are privileged to produce an approximate total of 40,000 pounds in no more than two campaigns, the price will be **$25 per pound.** These prices are f.o.b. Leland, North Carolina and include all labor, raw materials and waste disposal.

2271 Andrew Jackson Hwy. • P.O. Box 130 • Leland, N.C. 28451 • Phone: 910-371-2234 • Fax: 910-371-9351

For the combined **trial campaign** of one run in January and four runs in February, the price will be **$42 per pound** for the total of 5,000 pounds. This price will be firm provided your single purchase order covers both the first run and subsequent four runs. The increased charge of $7 per pound covers our added costs for setup and cleanup for the one run trial.

In the unlikely event that the January trial fails to produce acceptable product, Donaldson has the option of canceling the February campaign with no penalty.

We have scheduled the week of January 10, 2000 for the trial run. Because there is so little time until then, we will need to have your purchase order no later than December 28.

We hope that you find this offer attractive and look forward to supplying your long term needs for this polymer.

Sincerely,

[redacted]

cc: [redacted] via telefax [redacted]

nally, the Defendant argues that ' (unjust enrichment) is preempted opyright Act and also seeks dismiss- ınt V on the ground that the Plaintiff d to state a cause of action. In order a cause of action for unjust enrich- ıe Plaintiff must allege that (1) the has conferred a benefit on the de- who has knowledge of the benefit; defendant voluntarily accepts and the benefit conferred; and (3) the tances are such that it would be in- e for the defendant to retain the without paying the value of the bene- ıe plaintiff. *See, e.g., Greenfield v. Care Inc.*, 705 So.2d 926 (Fla. 4th 1997). The Plaintiff has failed to hat it conferred a benefit on the ınt. Rather, the Plaintiff alleges only : Defendant, without authorization, he Plaintiff's product. As such, the 's claim for unjust enrichment can- hstand the Defendant's Motion to . Accordingly, the Defendant's Mo- Dismiss County V is granted.[2] IT is

ERED AND ADJUDGED that the ınt's Motion to Dismiss is DENIED ıunt II. It is further
ERED AND ADJUDGED that the ınt's Motion to Dismiss is DENIED )UT PREJUDICE to address in a for summary judgment as to Counts IV. It is further
ERED AND ADJUDGED that the ınt's Motion to Dismiss is GRANT- o Count V.

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use the Court finds that the Plaintiff d to state a cause of action with regard to /, there is no need for the Court to ıe whether the Copyright Act preempts



**U.S. Supreme Court**

Pfaff v. Wells Electronics Inc.

No. 97-1130

Decided November 10, 1998

PATENTS

1. Patentability/Validity — Date of invention — Reduction to practice (§115.0405)

Patentability/Validity — Anticipation — Prior sale — Degree of development (§115.0707.05)

Invention can be "on sale" within meaning of 35 USC 102(b) even if it has not yet been reduced to practice, since on-sale bar of Section 102(b) applies if, prior to critical date, product is subject of commercial offer for sale, and invention is ready for patenting, and since second condition may be satisfied by proof of reduction to practice before critical date, or by proof that prior to critical date inventor had prepared drawings or other descriptions of invention that were sufficiently specific to enable person skilled in art to practice invention.

2. Patentability/Validity — Date of invention — Reduction to practice (§115.0405)

Patentability/Validity — Anticipation — Prior sale — Degree of development (§115.0707.05)

Invention of patent for computer chip socket was ready for patenting when it was offered for sale more than one year prior to patent's application date, and patent is therefore invalid under 35 USC 102(b) even though invention had not yet been reduced to practice, since manufacturer was able to produce sockets using inventor's detailed drawings and specifications, and since those sockets contained all elements of invention claimed in patent.

Particular patents — General and mechanical — Computer chips

4,491,377, Pfaff, mounting housing for leadless chip carrier, judgment holding claims 1, 6, 7, 10, 11, and 19 invalid affirmed.

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Petition for writ of certiorari to the U.S. Court of Appeals for the Federal Circuit; 43 USPQ2d 1928.

Action by Wayne K. Pfaff against Wells Electronics Inc. for patent infringement. The U.S. District Court for the Northern District of Texas, Sanders, S.J., held that two claims of patent in suit were invalid for anticipation, that four additional claims were not invalid, and that three of those claims were infringed. The U.S. Court of Appeals for the Federal Circuit reversed in part, holding four of six claims in question invalid under on-sale bar of 35 USC 102(b). On petition of plaintiff-appellant Wayne K. Pfaff for writ of certiorari. Affirmed.

Jerry R. Selinger and Susan E. Powley, of Jenkens & Gilchrist, Dallas, Texas; Jack A. Kanz, Dallas, for petitioner.

C. Randall Bain, Alan H. Blankenheimer, Patricia A. Hubbard, C. Mark Kittredge, and Dan L. Bagatell, of Brown & Bain, Phoenix, Ariz.; James D. Hall, of Baker & Daniels, South Bend, Ind., for respondent.

Jeffrey P. Minnear, assistant to solicitor general, Seth P. Waxman, solicitor general, Lawrence G. Wallace, deputy solicitor general, William Kanter, Alfred Mollin, David Seidman, and Marsk S. Popofsky, U.S. Department of Justice; Nancy J. Linck, solicitor, Albin F. Drost, deputy solicitor, John M. Whealan, and Kevin T. Kramer, associate solicitor, U.S. Patent and Trademark Office, for amicus curiae United States.

SYLLABUS BY THE COURT

Under §102(b) of the Patent Act of 1952, no one can patent an "invention" that has been "on sale" more than one year before filing a patent application. In early 1981, petitioner Pfaff designed a new computer chip socket and sent detailed engineering drawings of the socket to a manufacturer. He also showed a sketch of his concept to Texas Instruments, which placed an order for the new sockets prior to April 8, 1981. In accord with his normal practice, Pfaff did not make and test a prototype before offering to sell the socket in commercial quantities. He filled the order in July 1981, and thus the evidence indicates that he first reduced his invention to practice that summer. He applied for a patent on April 19, 1982, making April 19, 1981, the critical date for §102(b)'s on-sale bar. After the patent issued, he lost an infringement action he filed against respondent, Wells Electronics, Inc. Subsequently, he brought this suit, alleging that a modified version of Wells' socket in-

fringed six of his patent's claims. The District Court held, *inter alia*, that three of the claims were infringed, rejecting Wells' §102(b) defense on the ground that Pfaff had filed the patent application less than a year after reducing the invention to practice. In reversing, the Court of Appeals concluded, among other things, that §102(b)'s 1-year period began to run when the invention was offered for sale commercially, not when it was reduced to practice.

*Held:* Pfaff's patent is invalid because the invention had been on sale for more than one year in this country before he filed his patent application.

(a) The primary meaning of "invention" in the Patent Act unquestionably refers to the inventor's conception rather than to a physical embodiment of that idea. The statute contains no express "reduction to practice" requirement, see §§100, 101, 102(g), and it is well settled that an invention may be patented before it is reduced to practice. In *The Telephone Cases*, 126 U.S. 1, 535-536, this Court upheld a patent issued to Alexander Graham Bell even though he had filed his application before constructing a working telephone. Applying the reasoning of *The Telephone Cases* to the facts of this case, it is evident that Pfaff could have obtained a patent when he accepted Texas Instruments' order, for at that time he provided the manufacturer with a description and drawings of "sufficient clearness and precision to enable those skilled in the matter" to produce the device, *id.*, at 536.

(b) Pfaff's nontextual argument-that longstanding precedent, buttressed by the interest in providing inventors with a clear standard identifying the onset of the 1-year period, justifies a special interpretation of "invention" in §102(b) — is rejected. While reduction to practice provides sufficient evidence that an invention is complete, the facts of *The Telephone Cases* and this case show that such proof is not necessary in every case.

(c) The on-sale bar applies when two conditions are satisfied before the critical date. First, the product must be the subject of a commercial offer for sale. Here, the acceptance of the purchase order prior to April 8, 1981, makes it clear that such an offer had been made, and there is no question that the sale was commercial. Second, the invention must be ready for patenting. That condition may be satisfied in at least two ways: by proof of reduction to practice before the critical date; or by proof that prior to the critical date the inventor had prepared drawings or other descriptions of the invention that were sufficiently specific to enable a person skilled in the art to practice the invention. This condition is satisfied here because the drawings sent to the manufacturer before the critical date fully disclosed the invention.

124 F.3d 1429 [43 USPQ2d 1928], affirmed.

**Stevens, J.**

Section 102(b) of the Patent Act of 1952 provides that no person is entitled to patent an "invention" that has been "on sale" more than one year before filing a patent application.[1] We granted certiorari to determine whether the commercial marketing of a newly invented product may mark the beginning of the 1-year period even though the invention has not yet been reduced to practice.[2]

I

On April 19, 1982, petitioner, Wayne Pfaff, filed an application for a patent on a computer chip socket. Therefore, April 19, 1981, constitutes the critical date for purposes of the on-sale bar of 35 U.S.C. § 102(b); if the 1-year period began to run before that date, Pfaff lost his right to patent his invention.

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[1] "A person shall be entitled to a patent unless—

. . . . . .

"(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or . . . ." 35 U.S.C. §102.

[2] "A process is reduced to practice when it is successfully performed. A machine is reduced to practice when it is assembled adjusted and used. A manufacture is reduced to practice when it is completely manufactured. A composition of matter is reduced to practice when it is completely composed." *Corona Cord Tire Co. v. Dovan Chemical Corp.*, 276 U.S. 358, 383 (1928).



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[3] At his deposition,
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"Q. It was in a dr
"A. Strictly in a
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"Q. 'Boom-boom'?
"A. You got it.
"Q. You are sati
come up with some
go — 'it works'?
"A. I know what
time." App. 96-97.

[4] Initial sales of the

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|---|---|
| 1981 | $350,0 |
| 1982 | $937,0 |
| 1983 | $2,800,0 |
| 1984 | $3,430,0 |

App. to Pet. for Cert.

Pfaff commenced work on the socket in November 1980, when representatives of Texas Instruments asked him to develop a new device for mounting and removing semiconductor chip carriers. In response to this request, he prepared detailed engineering drawings that described the design, the dimensions, and the materials to be used in making the socket. Pfaff sent those drawings to a manufacturer in February or March 1981.

Prior to March 17, 1981, Pfaff showed a sketch of his concept to representatives of Texas Instruments. On April 8, 1981, they provided Pfaff with a written confirmation of a previously placed oral purchase order for 30,100 of his new sockets for a total price of $91,155. In accord with his normal practice, Pfaff did not make and test a prototype of the new device before offering to sell it in commercial quantities.[3]

The manufacturer took several months to develop the customized tooling necessary to produce the device, and Pfaff did not fill the order until July 1981. The evidence therefore indicates that Pfaff first reduced his invention to practice in the summer of 1981. The socket achieved substantial commercial success before Patent No. 4,491,377 (the '377 patent) issued to Pfaff on January 1, 1985.[4]

After the patent issued, petitioner brought an infringement action against respondent, Wells Electronics, Inc., the manufacturer of a competing socket. Wells prevailed on the basis of a finding of no infringement.[5] When respondent began to market a modified device, petitioner brought this suit, alleging that the modifications infringed six of the claims in the '377 patent.

After a full evidentiary hearing before a Special Master,[6] the District Court held that two of those claims (1 and 6) were invalid because they had been anticipated in the prior art. Nevertheless, the court concluded that four other claims (7, 10, 11, and 19) were valid and three (7, 10, and 11) were infringed by various models of respondent's sockets. App. to Pet. for Cert. 21a-22a. Adopting the Special Master's findings, the District Court rejected respondent's §102(b) defense because Pfaff had filed the application for the '377 patent less than a year after reducing the invention to practice.

The Court of Appeals reversed, finding all six claims invalid. 124 F.3d 1429 [43 USPQ2d 1928] (CA Fed. 1997). Four of the claims (1, 6, 7, and 10) described the socket that Pfaff had sold to Texas Instruments prior to April 8, 1981. Because that device had been offered for sale on a commercial basis more than one year before the patent application was filed on April 19, 1982, the court concluded that those claims were invalid under §102(b). That conclusion rested on the court's view that as long as the invention was "substantially complete at the time of sale," the 1-year period began to run, even though the invention had not yet been reduced to practice. *Id.*, at 1434. The other two claims (11 and 19) described a feature that had not been included in Pfaff's initial design, but the Court of Appeals concluded as a matter of law that the additional feature was not itself patentable because it was an obvious addition to the prior art.[7] Given the

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[3] At his deposition, respondent's counsel engaged in the following colloquy with Pfaff:

"Q. Now, at this time [late 1980 or early 1981] did we *[sic]* have any prototypes developed or anything of that nature, working embodiment?

"A. No.

"Q. It was in a drawing. Is that correct?

"A. Strictly in a drawing. Went from the drawing to the hard tooling.

That's the way I do my business.

"Q. 'Boom-boom'?

"A. You got it.

"Q. You are satisfied, obviously, when you come up with some drawings that it is going to go — 'it works'?

"A. I know what I'm doing, yes, most of the time." App. 96-97.

[4] Initial sales of the patented device were:

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|---|---|
| 1981 | $350,000 |
| 1982 | $937,000 |
| 1983 | $2,800,000 |
| 1984 | $3,430,000 |

App. to Pet. for Cert. 223.

[5] *Pfaff* v. *Wells Electronics, Inc.*, 9 USPQ2d 1366 (ND Ind. 1988). The court found that the Wells device did not literally infringe on Pfaff's '377 patent based on the physical location of the sockets' conductive pins.

[6] Initially the District Court entered summary judgment in favor of respondent, but the Court of Appeals reversed and remanded for trial because issues of fact were in dispute. See 5 F.3d 514 [28 USPQ2d 1119] (CA Fed. 1993).

[7] Title 35 U.S.C. §103 provides: "A patent may not be obtained though the invention is not identically disclosed or described . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."

court's §102(b) holding, the prior art included Pfaff's first four claims.

Because other courts have held or assumed that an invention cannot be "on sale" within the meaning of §102(b) unless and until it has been reduced to practice, see, *e.g., Timely Products Corp.* v. *Arron*, 523 F.2d 288, 299-302 [187 USPQ 257] (CA2 1975); *Dart Industries, Inc.* v. *E.I. DuPont de Nemours & Co.*, 489 F.2d 1359, 1365, n.11 [179 USPQ 392] (CA7 1973), *cert. denied*, 417 U.S. 933 [182 USPQ 1] (1974), and because the text of §102(b) makes no reference to "substantial completion" of an invention, we granted certiorari. 523 U.S. ____ (1998).

II

The primary meaning of the word "invention" in the Patent Act unquestionably refers to the inventor's conception rather than to a physical embodiment of that idea. The statute does not contain any express requirement that an invention must be reduced to practice before it can be patented. Neither the statutory definition of the term in §100[1] nor the basic conditions for obtaining a patent set forth in §101[2] make any mention of "reduction to practice." The statute's only specific reference to that term is found in §102(g), which sets forth the standard for resolving priority contests between two competing claimants to a patent. That subsection provides:

> "In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other."

Thus, assuming diligence on the part of the applicant, it is normally the first inventor to conceive, rather than the first to reduce to practice, who establishes the right to the patent.

It is well settled that an invention may be patented before it is reduced to practice. In 1888, this Court upheld a patent issued to Alexander Graham Bell even though he had filed his application before constructing a working telephone. Chief Justice Waite's reasoning in that case merits quoting at length:

> "It is quite true that when Bell applied for his patent he had never actually transmitted telegraphically spoken words so that they could be distinctly heard and understood at the receiving end of his line, but in his specification he did describe accurately and with admirable clearness his process, that is to say, the exact electrical condition that must be created to accomplish his purpose, and he also described, with sufficient precision to enable one of ordinary skill in such matters to make it, a form of apparatus which, if used in the way pointed out, would produce the required effect, receive the words, and carry them to and deliver them at the appointed place. The particular instrument which he had, and which he used in his experiments, did not, under the circumstances in which it was tried, reproduce the words spoken, so that they could be clearly understood, but the proof is abundant and of the most convincing character, that other instruments, carefully constructed and made exactly in accordance with the specification, without any additions whatever, have operated and will operate successfully. A good mechanic of proper skill in matters of the kind can take the patent and, by following the specification strictly, can, without more, construct an apparatus which, when used in the way pointed out, will do all that it is claimed the method or process will do . . . .
>
> "The law does not require that a discoverer or inventor, in order to get a patent for a process, must have succeeded in bringing his art to the highest degree of perfection. It is enough if he describes his method with sufficient clearness and precision to enable those skilled in the matter to understand what the process is, and if he points out some practicable way of putting it into operation." *The Telephone Cases*, 126 U.S. 1, 535-536 (1888).[3]

[1] Title 35 §100, "Definitions," states,

"When used in this title unless the context otherwise indicates—

"(a) The term 'invention' means invention or discovery. . . ."

[2] Section 101, "Inventions patentable," provides, "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."

[3] This Court has also held a patent invalid because the invention had previously been disclosed in a prior patent application, although that

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When we apply the reasoning of *The Telephone Cases* to the facts of the case before us today, it is evident that Pfaff could have obtained a patent on his novel socket when he accepted the purchase order from Texas Instruments for 30,100 units. At that time he provided the manufacturer with a description and drawings that had "sufficient clearness and precision to enable those skilled in the matter" to produce the device. The parties agree that the sockets manufactured to fill that order embody Pfaff's conception as set forth in claims 1, 6, 7, and 10 of the '377 patent. We can find no basis in the text of §102(b) or in the facts of this case for concluding that Pfaff's invention was not "on sale" within the meaning of the statute until after it had been reduced to practice.

## III

Pfaff nevertheless argues that longstanding precedent, buttressed by the strong interest in providing inventors with a clear standard identifying the onset of the 1-year period, justifies a special interpretation of the word "invention" as used in §102(b). We are persuaded that this nontextual argument should be rejected.

As we have often explained, most recently in *Bonito Boats, Inc.* v. *Thunder Craft Boats, Inc.*, 489 U.S. 141, 151 [9 USPQ2d 1847] (1989), the patent system represents a carefully crafted bargain that encourages both the creation and the public disclosure of new and useful advances in technology, in return for an exclusive monopoly for a limited period of time. The balance between the interest in motivating innovation and enlightenment by rewarding invention with patent protection on the one hand, and the interest in avoiding monopolies that unnecessarily stifle competition on the other, has been a feature of the federal patent laws since their inception. As this Court explained in 1871:

> "Letters patent are not to be regarded as monopolies . . . but as public franchises granted to the inventors of new and useful improvements for the purpose of securing to them, as such inventors, for the limited term therein mentioned, the exclusive right and liberty to make and use and vend to others to be used their own inventions, as tending to promote the progress of science and the useful arts, and as matter of compensation to the inventors for their labor, toil, and expense in making the inventions, and reducing the same to practice for the public benefit, as contemplated by the Constitution and sanctioned by the laws of Congress." *Seymour* v. *Osborne*, 11 Wall. 516, 533-534.

Consistent with these ends, §102 of the Patent Act serves as a limiting provision, both excluding ideas that are in the public domain from patent protection and confining the duration of the monopoly to the statutory term. See, *e.g.*, *Frantz Mfg. Co.* v. *Phenix Mfg. Co.*, 457 F.2d 314, 320 [173 USPQ 266] (CA7 1972).

We originally held that an inventor loses his right to a patent if he puts his invention into public use before filing a patent application. "His voluntary act or acquiescence in the public sale and use is an abandonment of his right" *Pennock* v. *Dialogue*, 2 Pet. 1, 24 (1829) (Story, J.). A similar reluctance to allow an inventor to remove existing knowledge from public use undergirds the on-sale bar.

Nevertheless, an inventor who seeks to perfect his discovery may conduct extensive testing without losing his right to obtain a patent for his invention-even if such testing occurs in the public eye. The law has long recognized the distinction between inventions put to experimental use and products sold commercially. In 1878, we explained why patentability may turn on an inventor's use of his product.

> "It is sometimes said that an inventor acquires an undue advantage over the public by delaying to take out a patent, inasmuch as he thereby preserves the monopoly to himself for a longer period than is allowed by the policy of the law; but this cannot be said with justice when the delay is occasioned by a *bona fide* effort to bring his invention to perfection, or to ascertain whether it will answer the purpose intended. His monopoly only continues for the allotted period, in any event; and it is the interest of the public, as well as himself, that the invention should be perfect and properly tested, before a patent is granted for it. *Any attempt to use it for a profit,*

application did not claim the invention and the first invention apparently had not been reduced to practice. *Alexander Milburn Co.* v. *Davis-Bournonville Co.*, 270 U.S. 390, 401-402 (1926).

*and not by way of experiment, for a longer period than two years before the application, would deprive the inventor of his right to a patent.*" *Elizabeth* v. *Pavement Co.*, 97 U.S. 126, 137 (emphasis added).

The patent laws therefore seek both to protect the public's right to retain knowledge already in the public domain and the inventor's right to control whether and when he may patent his invention. The Patent Act of 1836, 5 Stat. 117, was the first statute that expressly included an on-sale bar to the issuance of a patent. Like the earlier holding in *Pennock*, that provision precluded patentability if the invention had been placed on sale at any time before the patent application was filed. In 1839, Congress ameliorated that requirement by enacting a 2-year grace period in which the inventor could file an application. 5 Stat. 353.

In *Andrews* v. *Hovey*, 123 U.S. 267, 274 (1887), we noted that the purpose of that amendment was "to fix a period of limitation which should be certain"; it required the inventor to make sure that a patent application was filed "within two years from the completion of his invention," *ibid.* In 1939, Congress reduced the grace period from two years to one year. 53 Stat. 1212.

Petitioner correctly argues that these provisions identify an interest in providing inventors with a definite standard for determining when a patent application must be filed. A rule that makes the timeliness of an application depend on the date when an invention is "substantially complete" seriously undermines the interest in certainty.[11] Moreover, such a rule finds no support in the text of the statute. Thus, petitioner's argument calls into question the standard applied by the Court of Appeals, but it does not persuade us that it is necessary to engraft a reduction to practice element into the meaning of the term "invention" as used in § 102(b).

The word "invention" must refer to a concept that is complete, rather than merely one that is "substantially complete." It is true that reduction to practice ordinarily provides the best evidence that an invention is complete. But just because reduction to practice is sufficient evidence of completion, it does not follow that proof of reduction to practice is necessary in every case. Indeed, both the facts of the *Telephone Cases* and the facts of this case demonstrate that one can prove that an invention is complete and ready for patenting before it has actually been reduced to practice.[12]

[1] We conclude, therefore, that the on-sale bar applies when two conditions are satisfied before the critical date. First, the product must be the subject of a commercial offer for sale. An inventor can both understand and control the timing of the first commercial marketing of his invention. The experimental use doctrine, for example, has not generated concerns about indefiniteness,[13] and we perceive no reason why un-

[11] The Federal Circuit has developed a multifactor, "totality of the circumstances" test to determine the trigger for the on-sale bar. See, *e. g.*, *Micro Chemical, Inc.* v. *Great Plains Chemical Co.*, 103 F.3d 1538, 1544 [41 USPQ2d 1238] (1997) (stating that, in determining whether an invention is on sale for purposes of 102(b), " 'all of the circumstances surrounding the sale or offer to sell, including the stage of development of the invention and the nature of the invention, must be considered and weighed against the policies underlying section 102(b)' "); see also *UMC Electronics Co.* v. *United States*, 816 F.2d 647, 656 [2 USPQ2d 1465] (1987) (stating the on-sale bar "does not lend itself to formulation into a set of precise requirements"). As the Federal Circuit itself has noted, this test "has been criticized as unnecessarily vague." *Seal-Flex, Inc.* v. *Athletic Track & Court Construction*, 98 F.3d 1318, 1323, n.2 [40 USPQ2d 1450] (1996).

[12] Several of this Court's early decisions stating that an invention is not complete until it has been reduced to practice are best understood as indicating that the invention's reduction to practice demonstrated that the concept was no longer in an experimental phase. See, *e.g.*, *Seymour* v. *Osborne*, 11 Wall. 516, 552 (1871) ("Crude and imperfect experiments are not sufficient to confer a right to a patent; but in order to constitute an invention, the party must have proceeded so far as to have reduced his idea to practice, and embodied it in some distinct form"); *Clark Thread Co.* v. *Willimantic Linen Co.*, 140 U.S. 481, 489 (1891) (describing how inventor continued to alter his thread winding machine until July 1858, when "he put it in visible form in the shape of a machine. ... It is evident that the invention was not completed until the construction of the machine"); *Corona Cord Tire Co.* v. *Dovan Chemical Corp.*, 276 U.S., at 382-383 (stating that an invention did not need to be subsequently commercialized to constitute prior art after the inventor had finished his experimentation. "It was the fact that it would work with great activity as an accelerator that was the discovery, and that was all, and the necessary reduction to use is shown by in-stances making clear that it did so work, and was a completed discovery").

[13] See, *e.g.*, Rooklidge & Jensen, Common Sense, Simplicity and Experimental Use Negation of the Public Use and On Sale Bars to Patentability, 29 John Marshall L. Rev. 1, 29

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manageable uncertainty should attend a rule that measures the application of the on-sale bar of §102(b) against the date when an invention that is ready for patenting is first marketed commercially. In this case the acceptance of the purchase order prior to April 8, 1981, makes it clear that such an offer had been made, and there is no question that the sale was commercial rather than experimental in character.

Second, the invention must be ready for patenting. That condition may be satisfied in at least two ways: by proof of reduction to practice before the critical date; or by proof that prior to the critical date the inventor had prepared drawings or other descriptions of the invention that were sufficiently specific to enable a person skilled in the art to practice the invention.[14] In this case the second condition of the on-sale bar is satisfied because the drawings Pfaff sent to the manufacturer before the critical date fully disclosed the invention.

The evidence in this case thus fulfills the two essential conditions of the on-sale bar. As succinctly stated by Learned Hand:

> "[I]t is a condition upon an inventor's right to a patent that he shall not exploit his discovery competitively after it is ready for patenting; he must content himself with either secrecy, or legal monopoly." *Metallizing Engineering Co.* v. *Kenyon Bearing & Auto Parts Co.*, 153 F.2d 516, 520 [68 USPQ 54] (CA2 1946).

(1995) (stating that "whether a particular activity is experimental is often clear").

[14] The Solicitor General has argued that the rule governing on-sale bar should be phrased somewhat differently. In his opinion, "if the sale or offer in question embodies the invention for which a patent is later sought, a sale or offer to sell that is primarily for commercial purposes and that occurs more than one year before the application renders the invention unpatentable. *Seal-Flex, Inc.* v. *Athletic Track and Court Constr.*, 98 F.3d 1318, 1325 [40 USPQ2d 1450] (Fed. Cir. 1996) (Bryson, J., concurring in part and concurring in the result)." It is true that evidence satisfying this test might be sufficient to prove that the invention was ready for patenting at the time of the sale if it is clear that no aspect of the invention was developed after the critical date. However, the possibility of additional development after the offer for sale in these circumstances counsels against adoption of the rule proposed by the Solicitor General.

[2] The judgment of the Court of Appeals finds support not only in the text of the statute but also in the basic policies underlying the statutory scheme, including §102(b). When Pfaff accepted the purchase order for his new sockets prior to April 8, 1981, his invention was ready for patenting. The fact that the manufacturer was able to produce the socket using his detailed drawings and specifications demonstrates this fact. Furthermore, those sockets contained all the elements of the invention claimed in the '377 patent. Therefore, Pfaff's '377 patent is invalid because the invention had been on sale for more than one year in this country before he filed his patent application. Accordingly, the judgment of the Court of Appeals is affirmed.

*It is so ordered.*

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U.S. Court of Appeals
Ninth Circuit

Batjac Productions Inc. v. GoodTimes Home Video Corp.

No. 97-55947

Decided November 5, 1998

## COPYRIGHTS

**1. Notice, deposit, and registration — Notice — Effect of publication; public display (§207.0303)**

**Rights in copyright; infringement — Ownership of copyright — Derivative works (§213.0306)**

Section 7 of Copyright Act of 1909, which provides that publication of derivative work "shall not affect the force or validity of any subsisting copyright," does not protect common law copyrights under 1909 Act, since term "copyright" must be construed to refer only to subsisting statutory copyright; thus, where common law copyright in screenplay and derivative work, in form of motion picture, are held by same entity, publication of motion picture publishes its screenplay, to extent screenplay is incorporated into movie.

## EZ Dock Inc. v. Schafer Systems Inc.

U.S. Court of Appeals
Federal Circuit

No. 00-1443

Decided January 15, 2002

PATENTS

[1] **Patentability/Validity — Anticipation — Prior use — Experimental use (§ 115.0706.05)**

Evidence of experimental use does not give rise to free-standing doctrinal exception to statutory bars, but instead operates to negate application of 35 U.S.C. § 102(b), and since adequate proof of experimentation negates statutory bar, focus remains, throughout inquiry, on application of statutory bar itself.

[2] **Patentability/Validity — Anticipation — Prior use — Experimental use (§ 115.0706.05)**

**Patentability/Validity — Anticipation — Prior sale — Degree of development (§ 115.0707.05)**

Evidence of experimental use may negate application of 35 U.S.C. § 102(b) without conflict with "ready for patenting" prong of test for on-sale bar, since litigant may show readiness for patenting with evidence of reduction to practice, which, like evidence of experimentation necessary to negate statutory bar, involves proof that invention will work for its intended purpose, and since proof of experimentation has been explicitly preserved as negation of statutory bars.

[3] **Patentability/Validity — Anticipation — Prior use — Experimental use (§ 115.0706.05)**

**Patentability/Validity — Anticipation — Prior sale — Degree of development (§ 115.0707.05)**

Infringement plaintiff raised genuine issue of fact as to whether sale of floating boat dock invention was experimental use, since plaintiff corporation was not in business of selling docks at time of purchase in question, since buyer initiated purchase, did not pay full market price for dock, and received free equipment and installation, since inventors visited purchased dock on several occasions and made free repairs, since one inventor testified that he sold dock in order to determine whether it was capable of performing its intended purpose in its intended environment, and since inventors, between date of purchase and application date, changed shape of dock's pylons based on results of their tests.

**Particular patents — General and mechanical — Boat dock**

5,281,055, Neitzke and Vierus, floating dock, summary judgment of invalidity vacated.

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Appeal from the U.S. District Court for the District of Minnesota, Kyle, J.

Action by EZ Dock Inc. against Schafer Systems Inc. for patent infringement. Plaintiff appeals from summary judgment of patent invalidity. Vacated and remanded; Linn, J., concurring and offering additional views in separate opinion.

McPherson D. Moore, Douglas E. Warren, and Michael Kovac, of Polster, Lieder, Woodruff & Lucchesi, St Louis, Mo.; Daniel J. Maertens and Lora Esch Mitchell, of Fredrikson & Byron, Minneapolis, Minn., for plaintiff-appellant.

Derek J. Vandenburgh, Douglas J. Williams, and Gregory C. Golla, of Merchant & Gould, Minneapolis, for defendant-appellee.

Before Mayer, chief judge, and Rader and Linn, circuit judges.

**Rader, J.**

On summary judgment, the United States District Court for the District of Minnesota declared EZ Dock, Inc.'s United States Patent No. 5,281,055 (the '055 patent) invalid due to an on-sale bar. Because the district court improperly resolved issues of fact against EZ Dock on summary judgment, this court vacates and remands.

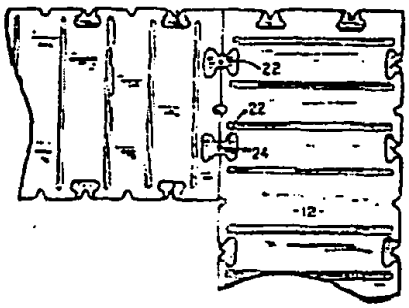
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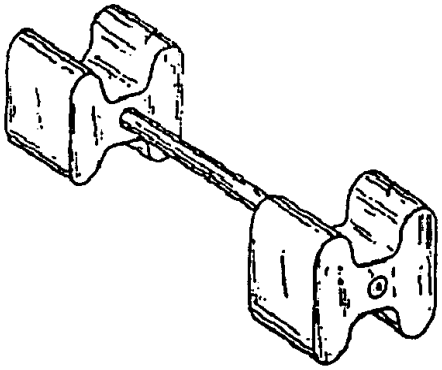
This case features a polyethylene floating dock. Marinas and homeowners with waterfront properties typically use floating docks for mooring boats. Floating docks typically consist of metal or foam flotation cores. Concrete shells cover these flotation cores to form dock modules. Wood or other suitable materials generally cover the concrete shells to form

the dock. Cables or springs then connect these dock sections to hold them together and to allow them to flex under stress.

This type of dock, however, deteriorates under severe weather conditions. With time, the cable or spring connections loosen and leave unsafe gaps between the dock sections. To overcome this deterioration, some manufacturers offer plastic docks. However, plastic docks often come in many pieces. These plastic docks pose difficulties in assembly.

In October 1989, Jack Neitzke and Clifton Vierus, both of Winona, Minnesota, began designing a floating dock made of polyethylene. Unlike earlier plastic docks, their design contained few parts. During this time, Mr. Neitzke ran an office supply store and a marina on the Mississippi river. Mr. Vierus operated a nightclub across the street. Neither Mr. Neitzke nor Mr. Vierus had any prior experience in dock design. After several months of collaboration, Mr. Neitzke and Mr. Vierus settled on a design. Their design featured uniform molded dock sections coupled together with rubber male-type anchors which fit into female-type receiving sockets. These couplers were shaped like a dog bone:



After Mr. Neitzke and Mr. Vierus settled on the design, Mr. Vierus began building a mold for the dock section. In early 1991, Mr. Neitzke and Mr. Vierus entered into an agreement with Winnebago Industries to build some dock sections using Mr. Vierus' mold. Mr. Vierus' mold, however, would not work with polyethylene. Mr. Neitzke and Mr. Vierus thus spent several months adjusting the mold to accommodate Winnebago's polyethylene manufacturing processes.

In May 1991, Winnebago gave Mr. Neitzke and Mr. Vierus sixty-four dock sections, produced with Mr. Neitzke's and Mr. Vierus' mold. Mr. Neitzke first tested some dock sections by floating them in the Mississippi river. After determining that they would float, he installed numerous dock sections at his marina sometime in late May or early June 1991.

At about the same time, Larry Greden brought a copier to Mr. Neitzke's office supply store for repair. Mr. Neitzke was storing several dock sections near the store's front windows at the time. Mr. Greden asked store employees about the dock. The employees directed Mr. Greden to Mr. Neitzke. Mr. Greden explained that he wished to buy one of Mr. Neitzke's docks as a Father's Day gift to install at his father's residence, Bass Camp, on the other side of the Mississippi river. Bass Camp experiences heavier boat traffic and more turbulent water flow than Mr. Neitzke's marina. Mr. Neitzke agreed to sell Mr. Greden two dock sections for $758.43, or 75% of the final retail price for the same dock system. Mr. Greden purchased the dock on June 13, 1991.

Mr. Neitzke installed the dock system at Bass Camp at no charge and included a gangplank, connectors, and all hardware also at no charge. In return, Mr. Greden agreed to allow Mr. Neitzke and Mr. Vierus to inspect the dock and replace or repair any part as needed. Mr. Neitzke visited the dock between four and six times during the summer of 1991 and made a repair at no charge to Mr. Greden. In addition, Mr. Vierus visited the dock between four to six times and made several repairs at no charge. The dock remained at Bass Camp until late 1999 when Mr. Greden sold it to Schafer Systems, Inc. (Schafer) for $1000 and two replacement docks.

The dock that Mr. Neitzke sold to Mr. Greden on June 13, 1991, had rectangular shaped pylons within its structure. Pylons are basically pockets formed in the underside of the



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dock. On the water, these pylons trap air to keep the dock afloat even when damage to the dock allows water to enter the molded cavities.

Several months after selling the dock to Mr. Greden, Mr. Vierus and Mr. Neitzke evaluated several docks with rectangular shaped pylons after testing them in the Mississippi river. They discovered that the rectangular shaped pylons did not mold properly and eventually caused leaks. Mr. Vierus and Mr. Neitzke thus changed the pylon shape from rectangular to frustoconical as recited and claimed in the '055 patent.




On July 17, 1992, Mr. Vierus and Mr. Neitzke applied for a patent on their polyethylene dock. Mr. Vierus and Mr. Neitzke also formed EZ Dock and assigned all patent rights to their company. The United States Patent and Trademark Office issued the '055 patent January 25, 1994. Claims 1 and 8 recite:

1. A floating dock, comprising:

at least two docking members having top and bottom surfaces, each docking member containing a plurality of female-type receiving sockets spaced along the perimeter of the top and bottom surfaces of the docking member; and, a generally symmetrical male-type anchor with a pair of flanges, each flange being positionable within a receiving socket of one of the docking members for securing the docking members together in a flexible manner.

8. A floating dock, comprising:

a docking member with top, bottom and side surfaces defining a hollow cavity and a generally frustoconically shaped pylon within the cavity extending from the top surface to the bottom surface.

In 1997, Schafer made several unsuccessful attempts to negotiate a license under the '055 patent from EZ Dock. Schafer then began selling its own floating dock system, "Connect-a-Dock." On November 2, 1998, EZ Dock filed suit against Schafer for, *inter alia*, infringement of the '055 patent. Schafer counterclaimed for summary judgment of invalidity, noninfringement, and unenforceability due to alleged inequitable conduct during prosecution of the '055 patent.

The district court granted Schafer summary judgment of invalidity. The district court determined that the dock claimed in the '055 patent was on sale in this country more than one year before July 17, 1992, the date on which Mr. Neitzke and Mr. Vierus filed their patent application. *EZ Dock, Inc. v. Schafer Systems, Inc.*, No. 98-2364 (D. Minn. May 8, 2000). EZ Dock appeals. This court has jurisdiction under 28 U.S.C. § 1295(a)(1).

II.

This court reviews a district court's grant of summary judgment without deference. *Conroy v. Reebok Int'l, Ltd.*, 14 F. 3d 1570, 1575, 29 USPQ2d 1373, 1377 (Fed. Cir. 1994). Summary judgment requires a determination that the record contains "no genuine issue as to any material fact" and "the moving party is entitled to a judgment as a matter of law." Fed. R. Civ. P. 56(c). In other words, after reviewing all the facts in a light most favorable to the nonmoving party, this court will only affirm a grant of summary judgment if no "reasonable jury could return a verdict for the nonmoving party." *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986).

The Patent Act endows patents with a presumption of validity. 35 U.S.C. § 282 (1994). The Act also prevents issuance of any patent for an invention that was publicly used or on-sale in the United States more than one year before the date on which the patent application was filed. 35 U.S.C. § 102(b) (1994). Thus, an accused infringer may overcome a patent's presumption of validity by presenting clear and convincing evidence of facts showing that the patented device was on-sale before such critical date. *Massey v. Del Lab.*, 118 F.3d 1568, 1573, 43 USPQ2d 1367, 1370 (Fed. Cir. 1997).

In *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55 [48 USPQ2d 1641] (1998), the Supreme Court recently set forth a two-part test for application of the on-sale bar. The bar applies when an invention is both the subject of a commercial offer for sale and ready for patenting before the critical date. *Pfaff*, 525 U.S. at 67. The Supreme Court also explained that the second condition – ready for patenting – "may be satisfied in at least two ways: by

proof of reduction to practice before the critical date; or by proof that prior to the critical date the inventor had prepared drawings or other descriptions of the invention that were sufficiently specific to enable a person skilled in the art to practice the invention." *Id.* at 59.

Before the Supreme Court's decision in *Pfaff*, this court used a multifactor, "totality of the circumstances" test to enforce the on-sale bar. *See, e.g., Micro Chem., Inc. v. Great Plains Chem. Co.*, 103 F.3d 1538, 1544, 41 USPQ2d 1238, 1243 (Fed. Cir. 1997) ("all of the circumstances surrounding the sale or offer to sell, including the stage of development of the invention and the nature of the invention, must be considered and weighed against the policies underlying section 102(b)"). In *Pfaff*, the Supreme Court determined that the "totality of circumstances" test was unnecessarily vague and "seriously undermine[d] the interest in certainty." *Pfaff*, 525 U.S. at 66 & n.11. Therefore, this court now "follows the Supreme Court's two-part test without balancing various policies according to the totality of the circumstances." *Weatherchem Corp. v. J.L. Clark, Inc.*, 163 F.3d 1326, 1333, 49 USPQ2d 1001, 1006 (Fed. Cir. 1998).

**[1]** This court has repeatedly stressed that evidence of experimental use does not give rise to a free-standing doctrinal exception to statutory bars, but instead operates to negate application of section 102(b):

> [I]t is incorrect to impose on the patent owner, as the trial court in this case did, the burden of proving that a "public use" was "experimental." These are not two separable issues. It is incorrect to ask: "Was it a public use?" and then "Was it experimental?" Rather the court is faced with a single issue: Was it a public use under 102(b)?

*TP Labs., Inc. v. Prof'l Positioners, Inc.*, 724 F.2d 965, 971-72, 220 USPQ 577, 582 (Fed. Cir. 1984); *Monon Corp v. Stoughton Trailers Inc.*, 239 F.3d 1253, 1258, 57 USPQ2d 1699, 1703 (Fed. Cir. 2001). Because adequate proof of experimentation negates a statutory bar, the focus remains throughout the inquiry on application of the statutory bar itself.

**[2]** This focus on the requirements for a statutory bar, however, could raise questions about the effect of the Supreme Court's recent clarifications of the standards for a statutory bar on the proof of experimentation adequate to negate the bar. In *Pfaff*, the Supreme Court expressly preserved the experimental use or sale negation of the section 102 bars: "Nevertheless, an inventor who seeks to perfect his discovery may conduct extensive testing without losing his right to obtain a patent for his invention — even if such testing occurs in the public eye. The law has long recognized the distinction between inventions put to experimental use and products sold commercially." *Pfaff*, 525 U.S. at 64. Experimentation evidence includes "tests needed to convince [the inventor] that the invention is capable of performing its intended purpose in its intended environment." *Gould Inc. v. United States*, 579 F.2d 571, 583, 198 USPQ 156, 167 (Ct. Cl. 1978); *Kolmes v. World Fibers Corp.*, 107 F.3d 1534, 1540, 41 USPQ2d 1829, 1833 (Fed. Cir. 1997) ("testing was . . . required in such an environment in order to ensure that the invention would work for its intended purpose"). Indeed in *Pfaff*, the Supreme Court reiterated its guidance in *City of Elizabeth v. American Nicholson Pavement Co.*, 97 U.S. 126, 137 (1877), that an inventor does not inappropriately delay filing "by a bona fide effort to bring his invention to perfection, or to ascertain whether it will answer the purpose intended." *Pfaff*, 525 U.S. at 64-65. Thus, the Supreme Court and this court apply the experimental use negation without conflict with the "ready for patenting" prong of the new on-sale bar test. Indeed as noted earlier, the Supreme Court acknowledged that a litigant may show readiness for patenting with evidence of reduction to practice. Like evidence of experimentation sufficient to negate a bar, reduction to practice involves proof that an invention will work for its intended purpose. *Scott v. Finney*, 34 F.3d 1058, 1061, 32 USPQ2d 1115 (Fed. Cir. 1994). Even beyond this overlap of the experimental use negation and the ready for patenting standard, however, the Supreme Court explicitly preserved proof of experimentation as a negation of statutory bars.

**[3]** After Schafer established its *prima facie* case that the '055 patent was invalid due to an on-sale bar, EZ Dock put forth evidence to negate that evidence by showing that its sale to Mr. Greden was experimental. When Mr. Greden purchased his dock, EZ Dock was not yet selling any docks. Mr. Neitzke did not have a "for sale" sign, brochure, or any other markings to indicate that the docks he had in his office supply store were for sale. Rather, Mr. Greden initiated the purchase of the dock. Mr.



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Greden did not pay full market price for the dock. Moreover Mr. Neitzke added free equipment and free installation to the price he did charge Mr. Greden. This evidence creates a genuine issue regarding the factual support for whether the inventors offered their invention for a commercial sale under market conditions in accordance with the first part of the *Pfaff* test.

By other actions, the inventors showed that their sale was experimental rather than premature commercial exploitation of their invention. *Cont'l Plastics Containers v. Owens Brockway Plastic Prods.*, 141 F.3d 1073, 1080, 46 USPQ 1277, 1280 (Fed. Cir. 1998) (the on sale bar prevents commercial exploitation of the invention beyond the statutory term). For instance, this court has often consulted evidence of monitoring to discern the distinction between experimental and commercial sales. *TP Lab.*, 724 F.2d at 972; *Grain Processing Corp. v. Am. Maize-Prods. Co.*, 840 F.2d 902, 906, 5 USPQ2d 1788, 1792 (Fed. Cir. 1988). In this case, Mr. Neitzke and Mr. Vierus both visited the dock that Mr. Greden purchased on several occasions. Moreover they made repairs for free. These facts show that the inventors were still working to detect and correct flaws in their invention.

This court and its predecessor have noted that experimentation negates a bar when the inventor tests claimed features of the invention. *In re Theis*, 610 F.2d 786, 793, 204 USPQ 188, 194 (CCPA 1979) ("It is settled law that . . . experimental use . . . does not apply to experiments performed with respect to non-claimed features of an invention."); *In re Brigance*, 792 F.2d 1103, 1109, 229 USPQ 988, 991-92 (Fed. Cir. 1986). In *Manville Sales Corp. v. Paramount Sys. Inc.*, 917 F.2d 544, 550, 16 USPQ2d 1587, 1592 (Fed. Cir. 1990), this court permitted the inventor to test the invention for durability during winter although claims did not expressly mention durability or severe weather conditions. Instead this court reasoned that the nature of the invention (luminaires) required durability so that the claims' reference to the subject matter placed that topic within the proper frame of experimentation. In this case, the '055 patent claims a floating dock. These floating docks, by their nature, must endure all kinds of water conditions, including choppy water created by weather and boating. The waters at Bass Camp, the location of Mr. Greden's dock, were much rougher than the waters in Mr. Neitzke's marina where he was testing other dock sections. Mr. Neitzke testified that he sold the dock to Mr. Greden to test how it would hold up under these more turbulent water conditions. In other words, Mr. Neitzke testified that he sold the dock to Mr. Greden to determine whether it was "capable of performing its intended purpose in its intended environment." *Gould*, 579 F.2d at 583.

Moreover, the dock that Mr. Greden purchased had rectangular shaped pylons. Mr. Neitzke and Mr. Vierus later changed the pylon shape of their dock design to frustoconical based on the results of their dock testing. EZ Dock claimed this frustoconical shape in claim 8 of the '055 patent. When an inventor can show changes during experimentation that result in features later claimed in the patent application, this evidence is a strong indication that the activities of the inventor negated any evidence of premature commercial exploitation of an invention ready for patenting. Again this evidence creates a genuine issue regarding whether the material facts support that the invention claimed in the '055 patent was ready for patenting at the time of the sale to Mr. Greden and regarding whether its sale was commercial or experimental.

In sum, during summary judgment, the trial court must weigh all evidence in the record in favor of the nonmovant. *Anderson*, 477 U.S. at 255. When viewed through this prism, EZ Dock has presented adequate evidence for a reasonable jury to find satisfied the factual predicate for experimental use and that the '055 patent thus is not invalid. The district court's grant of summary judgment that the '055 patent is invalid due to an on-sale bar was, therefore, improper.

## CONCLUSION

This court vacates the district court's grant of summary judgment that the '055 patent is invalid due to an on-sale bar and remands for trial.

## COSTS

Each party shall bear its own costs.

*VACATED AND REMANDED*

**Linn, J., additional views.**

While I concur both in the conclusion reached and in the reasoning expressed in the

majority opinion, I write to express my additional views on the experimental use doctrine and to observe that on this record the facts make this a much closer case than the majority opinion might suggest.

I

The experimental use doctrine permits an inventor to conduct testing to refine his invention without losing the right to obtain a patent, even if such testing occurs in the public eye. *Pfaff v. Wells Electronics, Inc.*, 525 U.S. 55, 64, 48 USPQ2d 1641, 1645 (1998). The experimental use doctrine arose as an exception to the traditional rule that an inventor loses the right to a patent if he puts the invention in public use or on sale before filing a patent application. *Id.*, quoting *Pennock v. Dialogue*, 27 U.S. (2 Pet.) 1, 24 (1829) ("[h]is voluntary act or acquiescence in the public sale and use is an abandonment of his right."). Congress codified the traditional rule as the "public use" and "on-sale" statutory bars of 35 U.S.C. § 102(b) and included in the statutory scheme a one-year grace period. The experimental use doctrine survived as a common law exception to those statutory bars. *Pfaff*, 525 U.S. at 64-65, 48 USPQ2d at 1646. The experimental use exception preserved the right to a patent if the purpose of a use made of an invention outside the one-year grace period was experimental as opposed to commercial:

> It is sometimes said that an inventor acquires an undue advantage over the public by delaying to take out a patent, inasmuch as he thereby preserves the monopoly to himself for a longer period than is allowed by the policy of the law; but this cannot be said with justice when the delay is occasioned by a *bona fide* effort to bring his invention to perfection, or to ascertain whether it will answer the purpose intended. His monopoly only continues for the allotted period, in any event; and it is the interest of the public, as well as himself, that the invention should be perfect and properly tested, before a patent is granted for it. Any attempt to use it for a profit, and not by way of experiment, for a longer period than two years before the application, would deprive the inventor of his right to a patent.

*Elizabeth v. Am. Nicholson Pavement Co.*, 97 U.S. 126, 137 (1877).

The experimental use exception was, over time, reformulated as experimental use "negation" of the statutory bar of § 102(b), in which the burden of persuasion does not shift at any time to the patentee. *See TP Labs., Inc. v. Prof'l Positioners, Inc.*, 724 F.2d 965, 971, 220 USPQ 577, 582 (Fed. Cir. 1984) ("it is incorrect to impose on the patent owner . . . the burden of proving that a 'public use' was 'experimental.' These are not two separable issues. It is incorrect to ask: 'Was it public use?' and then 'Was it experimental?' Rather, the court is faced with a single issue: Was it public use under § 102(b)?"). A "totality of the circumstances" test was used to determine whether the use was experimental or commercial in character. *See Western Marine Electronics, Inc. v. Furuno Elec. Co.*, 764 F.2d 840, 845, 226 USPQ 334, 337-38 (Fed. Cir. 1985) ("the court will want to consider the totality of the circumstances relating to the character and extent of commercial activities, . . . along with the character and extent of bona fide experimentation"). However, the "totality of the circumstances" test was discredited by the Supreme Court, and, with respect to the on-sale bar, replaced with a two-part test. *Pfaff*, 525 U.S. at 66-67 & n.11, 48 USPQ2d at 1646-47 & n.11.

The test announced by the Supreme Court in *Pfaff* set forth two conditions for application of the on-sale bar: "[f]irst, the product must be the subject of a commercial offer for sale. . . . Second, the invention must be ready for patenting." 525 U.S. at 67, 48 USPQ2d at 1646-47. The Supreme Court explained that the second prong is satisfied by either (a) "proof of reduction to practice before the critical date," or (b) "proof that prior to the critical date the inventor had prepared drawings or other descriptions of the invention that were sufficiently specific to enable a person skilled in the art to practice the invention." *Id.* at 67-68, 48 USPQ2d at 1647. The first prong of the *Pfaff* test focuses on the commercial characteristics, if any, of the individual transaction. A resolution of the first prong depends on an objective assessment of the facts surrounding the transaction. The inventor's subjective intent to experiment is not sufficient. *See Paragon Podiatry Lab., Inc. v. KLM Labs., Inc.*, 984 F.2d 1182, 1186, 25 USPQ2d 1561, 1564 (Fed. Cir. 1993) (citing *TP Labs.*, 724 F.2d at 972, 220 USPQ at 583 ("the expression by an inventor of his subjective in-



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tent to experiment, particularly after institution of litigation, is generally of minimal value")). *In contrast, the second prong focuses on the invention as a whole, implicating the invention's stage of development. It is only after the development of the invention has progressed to the stage where it is "ready for patenting," that the second prong of the Pfaff test can be said to be satisfied.*

Before *Pfaff*, reduction to practice was a central focus of both the on-sale bar and experimental use negation thereof. *See, e.g., Seal-Flex, Inc. v. Athletic Track & Court Constr.*, 98 F.3d 1318, 1324, 40 USPQ2d 1450, 1454 (Fed. Cir. 1996). The coincidence of reduction to practice as a focal point for both aspects brought a symmetry, and often a simplicity, to the analysis. An invention could be the subject of an experimental use anytime up to reduction to practice. *RCA Corp. v. Data Gen. Corp.*, 887 F.2d 1056, 1061, 12 USPQ2d 1449, 1453 (Fed. Cir. 1989). Once reduced to practice, the invention could not be the subject of an experiment that would negate an on-sale bar. *Atlantic Thermoplastics Co., Inc. v. Faytex Corp.*, 5 F.3d 1477, 1480, 28 USPQ2d 1343, 1346 (Fed. Cir. 1993). Conversely, an invention seldom would trigger an on-sale bar prior to the time it was reduced to practice. Because events that might be experimental in nature were only those occurring prior to the time the invention in question was reduced to practice, i.e., only during the experimental stage leading up to a reduction to practice, the distinction between a sale made for experimental purposes and a sale made during the experimental stage of an invention's development was often more academic than real.

After *Pfaff*, the coincidence of the transitional event of reduction to practice as a focal point for both the on-sale bar and the experimental use doctrine changed. What *Pfaff* made clear is that the triggering event for an on-sale bar is not reduction to practice, but the advancement of the invention to the stage where it is "ready for patenting." Because nothing in *Pfaff* altered the transitional significance of reduction to practice for experimental use negation, the heretofore complementary nature of the two tests and the symmetry that such congruence brought to the analytical framework disappeared. Traversing this new landscape now demands in each case a careful examination of the purpose of the use contemplated in a potentially barring sale, not merely that the invention then may be in an experimental stage, and signals a shift in focus from the second prong to the first in evaluating experimental use negation.

*Pfaff* changed the test for when an on-sale bar is triggered, but it did not change the experimental use doctrine or the timing or nature of events giving rise to an experimental use exception. "The law has long recognized the distinction between inventions put to experimental use and products sold commercially." *Pfaff*, 525 U.S. at 64, 48 USPQ2d at 1645. The Supreme Court stated that application of the on-sale bar of § 102(b) continues to turn on whether the inventor's use of the invention was commercial or experimental. *Id.* at 64-65, 48 USPQ2d at 1645-46. In particular, the Court discussed the experimental use doctrine in connection with the first part of the *Pfaff* test in evaluating whether the invention was the subject of a commercial offer for sale:

> The experimental use doctrine, for example, has not generated concerns about indefiniteness, and we perceive no reason why unmanageable uncertainty should attend a rule that measures the application of the on-sale bar of § 102(b) against the date when an invention that is ready for patenting is first marketed commercially. In this case . . . there is no question that the sale was commercial rather than experimental in character.

*Pfaff*, 525 U.S. at 67, 48 USPQ2d at 1646-47.

It bears repeating that what is important to an assessment of the commercial versus experimental significance of a sale is not necessarily the posture of the invention's overall development, but the nature or purpose of the particular use to which the invention that is the subject of that sale is to be put. *See Manville Sales Corp. v. Paramount Sys., Inc.*, 917 F.2d 544, 550, 16 USPQ2d 1587, 1592 (Fed. Cir. 1990) ("a sale that is primarily for experimental purposes, as opposed to commercial exploitation, does not raise an on sale bar"); *U.S. Envt'l Prods., Inc. v. Westall*, 911 F.2d 713, 716, 15 USPQ2d 1898, 1901 (Fed. Cir. 1990) ("[a] section 102(b) bar is avoided if the primary purpose of the sale was experimental"); *Barmag Barmer Maschinenfabrik AG v. Murata Mach., Ltd.*, 731 F.2d 831, 839, 221 USPQ 561, 567 (Fed. Cir. 1984) (quoting *In re Theis*, 610 F.2d 786, 793, 204 USPQ 188, 194 (CCPA 1979) ("[t]he experimental exception applies only if the commercial ex-

ploitation is merely incidental to the primary purpose of experimentation to perfect the invention")).

Thus, the question posed by the experimental use doctrine, assessed under the first prong of the two-part on-sale bar test of *Pfaff*, is not whether the invention was under development, subject to testing, or otherwise still in its experimental stage at the time of the asserted sale. Instead, the question is whether the transaction constituting the sale was "not incidental to the primary purpose of experimentation," i.e., whether the primary purpose of the inventor at the time of the sale, as determined from an objective evaluation of the facts surrounding the transaction, was to conduct experimentation. *Scaltech, Inc. v. Retec/Tetra, L.L.C.*, 178 F.3d 1378, 1384 n.1, 51 USPQ2d 1055, 1059 n.1 (Fed. Cir. 1999). As noted, once the invention is reduced to practice, there can be no experimental use negation. *Zacharin v. United States*, 213 F.3d 1366, 1369, 55 USPQ2d 1047, 1050 (Fed. Cir. 2000); *RCA Corp.*, 887 F.2d at 1061, 12 USPQ2d at 1453. But up to that point, regardless of the stage of development of the invention, and quite apart from the possible satisfaction of the second prong of the *Pfaff* test, the inventor is free to experiment, test, and otherwise engage in activities to determine if the invention is suitable for its intended purpose and thus satisfactorily complete. Furthermore, because the statutory bar of § 102(b) is evaluated on a claim-by-claim basis, the fact that an additional feature covered in a dependent claim may result from the sale of an invention covered in a parent claim does not mean that the parent claim may escape a statutory bar based on that sale. *See Lough v. Brunswick Corp.*, 86 F.3d 1113, 1122 n.5, 39 USPQ2d 1100, 1107 n.5 (Fed. Cir. 1996) ("[e]ach claim of the patent must be considered individually when evaluating a public use bar.").

In determining whether a use is commercial versus experimental, this court has considered a variety of factors relevant to the first part of the *Pfaff* test, including: (1) the necessity for public testing, (2) the amount of control over the experiment retained by the inventor, (3) the nature of the invention, (4) the length of the test period, (5) whether payment was made, (6) whether there was a secrecy obligation, (7) whether records of the experiment were kept, (8) who conducted the experiment, and (9) the degree of commercial exploitation during testing. *See Baker Oil Tools, Inc. v. Geo Vann, Inc.*, 828 F.2d 1558, 1564, 4 USPQ2d 1210, 1214 (Fed. Cir. 1987). We have also considered: (10) whether the invention reasonably requires evaluation under actual conditions of use, (11) whether testing was systematically performed, (12) whether the inventor continually monitored the invention during testing, and (13) the nature of contacts made with potential customers. *See Seal-Flex*, 98 F.3d at 1323, 40 USPQ2d at 1453-54.

While the Supreme Court in *Pfaff* discarded the "totality of the circumstances" test for determining the existence of an on-sale bar, 525 U.S. at 66 n.11, 48 USPQ2d at 1646 n.11, nothing in the Supreme Court's opinion suggests that a weighing of the factual submissions of the parties, particularly on the first prong of the *Pfaff* test, is precluded. *See Weatherchem Corp. v. J.L. Clark, Inc.*, 163 F.3d 1326, 1333-34, 49 USPQ2d 1001, 1007 (Fed. Cir. 1998) (weighing facts in applying *Pfaff*). To the contrary, the balancing of such facts lies at the heart of what has been termed "experimental use negation." *See TP Labs.*, 724 F.2d at 971, 220 USPQ at 582.

II

In the present case, there is no genuine issue of material fact in dispute as to the satisfaction of the second prong of the *Pfaff* test. The dock prototypes covered by claim 1 were far more than "drawings or other descriptions of the invention" and were sufficiently specific "to enable a person skilled in the art to practice the invention." *See Pfaff*, 525 U.S. at 67-68, 48 USPQ2d at 1647; *Robotic Vision Sys., Inc. v. View Eng'g, Inc.*, 249 F.3d 1307, 1312-13, 58 USPQ2d 1723, 1726 (Fed. Cir. 2001). Thus, the only question is whether Schafer presented enough evidence to meet its burden on the first prong; i.e., to show by clear and convincing evidence, resolving all reasonable doubts in favor of EZ Dock, that the single sale to Mr. Greden was a commercial sale not incidental to the primary purpose of experimentation.

On the facts presented, I think this is a much closer case than the majority opinion might suggest. The evidence of record makes it difficult to conclude that the primary purpose of the sale to Mr. Greden was experimentation. The sale to Mr. Greden was a commercial sale of an existing structure without assurances demanded or obtained by the seller



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that the docks would remain at Bass Camp for any length of time or would be subjected to any sort of test in the turbulent water conditions later asserted to be important. There were no limitations placed on the use to be made of the docks by Mr. Greden or his father. There were no requirements that the docks remain at the location where the docks were originally placed. There were no restrictions to prevent re-sale, and no effort to impose on Mr. Greden, Mr. Greden's father, or any transferee any obligation to assist or permit testing of any sort. There were no particular tests contemplated nor a period of time envisioned over which the tests would be undertaken. None of the evidence presented by either party shows control by the inventors over this alleged "experiment." "[A] use cannot be experimental if the inventor failed to maintain sufficient control over the invention and its testing." *Lough v. Brunswick Corp.*, 103 F.3d 1517, 1526, 41 USPQ2d 1385, 1393 (Fed. Cir. 1997) (declining suggestion for rehearing en banc) (Michel, J., dissenting); *Paragon*, 984 F.2d at 1187, 25 USPQ2d at 1565. *See also* Rooklidge and Jensen, *Common Sense, Simplicity and Experimental Use Negation of the Public Use and On Sale Bars to Patentability*, 29 J. Marshall L. Rev. 1, 29 n.144 (1995). The record in this case not only fails to show "sufficient control," it is devoid of any control by the inventors after the sale transaction was consummated.

The majority opinion points out that Mr. Greden initiated the purchase in the absence of any commercial marketing activity by the inventors, did not pay full market price for the dock, and received free installation and free repair services. But those facts are just as consistent with an arms-length commercial sale as they are with an experiment apparently undefined in scope or extent. I concur in the result only because the case is before us on summary judgment and we must view the evidence in a light most favorable to the nonmovant, here EZ Dock. It is therefore appropriate that we return the case to the fact finder for a more complete assessment of the relevant facts and a more thorough weighing of the evidence bearing on Schafer's burden to show by clear and convincing evidence that the sale to Mr. Greden was a commercial sale not incidental to the primary purpose of experimentation.

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## Southern Clay Products Inc. v. United Catalysts Inc.

U.S. District Court
Southern District of Texas
No. H-98-1756
Decided February 2, 2001

### PATENTS

**[1] Patentability/Validity — Specification — Written description (§ 115.1103)**

**Patent construction — Claims — Defining terms (§ 125.1305)**

Phrase "substantial average particle size reduction," in claim of patent for method of manufacturing organoclays, does not "swallow" specification if it is interpreted broadly to mean reduction in particle size sufficient to accomplish enhancement of gelling process of organoclay by recited process, since there is no variance between that interpretation and specification's description, by example, of two instances of particle size reduction, since term "substantial," when used with remainder of phrase, describes "sufficiency," and since no confusion is engendered when "substantial" is understood to describe sufficiency for purpose or consequence intended by invention.

**[2] Infringement — Literal infringement (§ 120.05)**

### JUDICIAL PRACTICE AND PROCEDURE

**Procedure — Evidence — Expert testimony (§ 410.3703)**

Defendant has failed to establish that its use of claimed process for separating clay agglomerate clusters and reducing size of clay particles does not infringe patents for method of manufacturing organoclays, since defendant's expert is unqualified by training or experience to render opinion that contradicts plaintiff's data evincing particle size reduction, since statistical methodology used by expert to show that process does not produce desired results is not scientific and is unreliable

pealable, SCOA Industries, Inc. v. Kennedy & Cohen, Inc., 530 F.2d 953, 189 USPQ 15 (CCPA 1976), this court has, under appropriate circumstances, permitted direct review of such orders. Specifically, where the appealed issue is separate and distinct from the remaining, undecided issues, *and* where the goal of judicial economy would be served by allowing the appeal, this court has permitted direct review of such orders. See Toro Co. v. Hardigg Industries, Inc., 549 F.2d 785, 193 USPQ 149 (CCPA 1977); Knickerbocker Toy Co., Inc. v. Faultless Starch Co., 59 CCPA 1300, 467 F.2d 501, 175 USPQ 417 (1972).

In its OPPOSITION TO APPELLEE'S MOTION TO DISMISS, appellant argues that the factual and legal issues under section 2(e)(2) are separate and distinct from those under sections 2(a) and 2(d). While we agree with appellant on this point, it must be noted, as discussed supra, that separateness and distinctness are not the sole criteria for permitting direct review of an otherwise interlocutory order. In the present case, we cannot say that it appears reasonably likely that the goal of judicial economy would be fostered by permitting this appeal. If the parties could take up on appeal each disputed ruling by the TTAB as it was handed down, an inter partes proceeding could drag on indefinitely. Moreover, the subject of this appeal may well become moot if appellant is victorious on one of the other asserted grounds of opposition.

[4] Gillespie v. United States Steel Corp., 379 U.S. 148 (1964), which has been called by one authority "[t]he sharpest departure from traditional notions of finality,"[2] does not dictate a result contrary to that reached here. In Gillespie, the Court pointed to two factors which are not present here, viz., that on the record therein the danger of denying justice by delay outweighed the inconvenience and costs of piecemeal review,[3] and that a ruling on the appealed issue was fundamental to the further conduct of the case.[4] In the present case, appellant has not shown that there exists a danger of prejudice to it as a result of delaying appeal that is so substantial as to outweigh the countervailing interest in avoiding the harms of piecemeal appeal. In addition, a ruling on the appealed issue is clearly not necessary to the further conduct of the opposition proceeding.

Accordingly, for the reasons discussed herein, it is ORDERED that appellee's MOTION TO DISMISS FOR LACK OF JURISDICTION is granted without prejudice to appellant appealing the same issue at the conclusion of the proceedings below.

*Granted*

[2] C. Wright, Law of Federal Courts §101, at 511 (3d ed. 1976).

[3] In Eisen v. Carlisle & Jacquelin, 417 U.S. 156, 171 (1974), the Court again noted the necessity of evaluating these competing considerations when viewing the requirement of finality.

[4] For a detailed discussion of Gillespie and appealability in the federal courts in general, see Redish, The Pragmatic Approach to Appealability in the Federal Courts, 75 Colum. L. Rev. 89 (1975).

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**U.S. Court of Claims**

Gould Inc. v. United States

No. 429-74 Decided May 17, 1978

PATENTS

**1. Interference — Reduction to practice — In general (§41.751)**

**Patentability — Anticipation — Prior knowledge, use or sale (§51.223)**

Only form of reduction to practice that allows longer-than-a-year period of experimental use under 35 U.S.C. 102(b) is that which occurs prior to testing for utility or to perfect or complete invention itself.

**2. Title — Government owned (§66.35)**

Government is entitled to license under all inventions first reduced to practice under government contract.

**3. Claims — In general (§20.01)**

**Patentability — Anticipation — Prior knowledge, use or sale (§51.223)**

Each patent claim is separate and distinct invention; it is possible to deal with one claim or more independently and distinctly from entire group of claims; one claim or more may be "on sale" or in "public use" without inventions covered by remaining claims being similarly "on sale" or in "public use."

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**4. Patent grant — Intent of patent laws (§50.15)**

**Patentability — Anticipation — Prior knowledge, use or sale (§51.223)**

Purpose of on sale bar and one year grace period is Congress' attempt to balance inventor's interests with public interests; Congress was concerned that inventor would have sufficient time not only to determine whether patent is desired following sale, but that sufficient time would also be provided to have patent application prepared and filed; Congress was also concerned with encouraging inventor to file for patent as soon as possible and, at same time, prevent commercial exploitation of invention as trade secret for more than one year.

**5. Use and sale — Sale (§69.8)**

Range of situations proscribed by "on sale" clause, 35 U.S.C. 102(b), are varied; showing of samples, without production quantities in existence, constitutes "on sale" under 35 U.S.C. 102(b); cases generally recognize intent of courts to prevent inventor from commercially exploiting invention for any amount of time beyond one year grace period.

**6. Interference — Reduction to practice — In general (§41.751)**

Invention's nature often is important factor in determining if actual reduction to practice has occurred.

**7. Interference — Conception of invention (§41.10)**

**Interference — Reduction to practice — In general (§41.751)**

**Use and sale — Extent and character of use (§69.5)**

It is necessary for invention to proceed through various stages of development; inventor first must have conception of invention, requiring formation in inventor's mind of definite and fixed idea of complete and operative invention that will later be reduced to practice; next, device is built and inventor conducts tests, except where inventor is certain that invention can be manufactured and sold as it currently exists, needed to establish invention is capable of performing its intended purpose in its intended environment; latter stage permits, inter alia, experimental use necessary to satisfy inventor of invention's merits; then, and only then, reduction to practice occurs.

**Particular patents — Barrel Engine**

3,151,527, Hamlin, Barrel Engine, Claims 1,2,3, and 5, invalid.

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Action by Gould Inc., against the United States, for compensation for use of an invention. Judgment for defendant; Nichols, Judge, dissenting, with opinion.

Modifying 195 USPQ 112.

William E. Schuyler, Jr., Washington, D.C. (George P. Edgell, and Schuyler, Birch, Swindler, McKie & Beckett, both of Washington, D.C., and Eber J. Hyde, Cleveland, Ohio, of counsel) for plaintiff.

Claud A Daigle, Jr. and Barbara Allen Babcock (Vito J. DiPietro, of counsel) for defendant.

Before Davis, Nichols, and Kashiwa, Judges.

Per Curiam.

**Opinion**

This case comes before the court on exceptions by the parties to the recommended decision of Trial Judge Joseph V. Colaianni, filed July 29, 1977, pursuant to Rule 134(h), having been submitted on the briefs and oral argument of counsel. Upon consideration thereof, since the court agrees with the trial judge's recommended decision, with a minor deletion by the court, it hereby affirms and adopts* the decision, as modified, as the basis for its judgment in this case.**

[1] In adopting the trial judge's opinion, the majority of the court emphasizes that (a) as the trial judge points out, the alleged "experimental" work (on which plaintiff relies) did not involve the elements of claims 1, 2, 3, or 5 — the only claims now in suit — but other aspects of the "barrel engine" not involved in the inventions described in those claims; (b) as pointed out in In re Yarn Processing Patent Validity Litigation, 498 F.2d 271, 274-275, 282 ff, 183 USPQ 65, 66-68, 72-73. (5th Cir.), cert. denied, 419 U.S. 1057, 184 USPQ 65 (1974), there are differing uses

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* Whereas the court adopts the trial judge's separate findings of fact, which are set forth in his report filed July 29, 1977, they are not printed herein since such facts as are necessary to the decision are contained in his opinion.

** The dissenting opinion of Judge Nichols follows the opinion of the trial judge which has been adopted by the court.

of "reduction to practice" and the only form of "reduction to practice" which allows a longer-than-a-year period of "experimental use" under 35 U.S.C. §102(b) is that which occurs prior to testing for utility or to perfect or complete the invention itself; and (c) the record in this case shows that the inventions in claims 1, 2, 3, and 5 had already been "reduced to practice" in the other sense in that these inventions had already been determined by the patent-holder to be useful and complete in themselves, and that the so-called "experimentation" involved here was directed toward new and other inventions (for which the Government would be licensed under its contracts).

It is therefore concluded that claims 1, 2, 3, and 5 of the Hamlin patent are invalid and that plaintiff is not entitled to recover. The petition is dismissed.

### Opinion of Trial Judge

COLAIANNI, Trial Judge: In this patent suit brought pursuant to 28 U.S.C. §1498, plaintiff, Gould Inc. (hereinafter referred to as "Gould"), seeks "reasonable and entire compensation" for the alleged unauthorized use by the Government of plaintiff's patented invention. The parties have agreed that the issues of infringement and validity of the patent would be determined first. Further, the parties have agreed that the amount of plaintiff's recovery, if any, would be deferred until after a final ruling by the court on the questions of infringement and validity.

The patent in suit, United States Patent No. 3,151,527 (hereinafter referred to as the "Hamlin" patent), was filed as application Serial No. 60,746 on October 5, 1960, and issued on October 6, 1964, to Halley H. Hamlin for an invention entitled "Barrel Engine." Plaintiff Gould by mesne assignments is the successor in interest to the original assignee, Clevite Corporation (hereinafter referred to as "Clevite"), and presently is the owner of all right, title and interest in the patent.

Only claims 1, 2, 3 and 5 are before the court. The remaining claims either are not alleged to be infringed or are conceded to have been reduced to practice under Government contracts which require a license to the Government on all inventions reduced to practice under such contracts. For reasons explained below, it is concluded that claims 1, 2, 3 and 5 are invalid because embodiments of these claims were on sale, within the meaning of 35 U.S.C. §102(b), more than 1 year before the filing of the patent application.

*Background Facts*

Around 1953, Clevite, a corporation with a substantial background in torpedo propulsion systems, recognized that the electric propulsion systems then being used in torpedoes had reached a state of development where the amount of power they produced could only be increased through significant increases in the weight and space required for such systems. Therefore, they concluded that nonelectric propulsion systems would need to be developed to achieve the higher speeds being demanded of future generations of torpedoes.

In the period 1953 to 1955, Clevite spent about $30,000 to investigate the feasibility of a gas-driven counterrotating engine being used as an alternate propulsion system. By late 1955, Clevite was ready to demonstrate to the Navy the feasibility of using gas-driven engines as the propulsion system for torpedoes.

This early engine, which developed less than 12 hp., was arranged in a torpedo afterbody with a propeller attached to each of the two counterrotatable output shafts. The afterbody was then mounted within a tank of water. At a November 4, 1955, demonstration, in the presence of naval and Clevite personnel, compressed nitrogen was fed into the engine causing the propellers to rotate in opposite directions and the water in the tank to be forced rearward of the torpedo afterbody.

The Navy was apparently sufficiently impressed with the demonstration to award Clevite contract NOrd 16753 on January 17, 1956, to develop the engine into a solid monopropellant-fueled engine capable of delivering about 30 hp. A second contract, NOrd 17826, to enlarge the engine to about 75 hp., was awarded on May 28, 1957, by the Navy to Clevite. On September 15, 1958, Aerojet-General Corporation (hereinafter referred to as "Aerojet"), working under Navy Contract NOrd 18326 to develop the high performance Mk 46 Mod O torpedo, awarded Clevite a subcontract to again increase (scale-up) the output horsepower of the engine. During the performance of the Aerojet contract, Clevite delivered at least 8 barrel engines to Aerojet and, in addition, quoted prices on even larger quantities. Finally, on October 5, 1960, Clevite filed an application on the inventions embodied in the engine. The claims varied in scope and in-



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cluded coverage of the embodiment developed by Clevite before the first contract with the Government, as well as embodiments and improvements developed under the Government contracts.

[2] Plaintiff has sued only on claims 1, 2, 3 and 5 which are the claims that it contends were reduced to practice before the first Government contract.[1] Among other defenses, defendant alleges that the invention covered by the claims in suit was not reduced to practice until after the first Government contract. Therefore, since defendant is entitled to a license under all inventions first reduced to practice under a Government contract, defendant argues that it is entitled to a license under claims 1, 2, 3 and 5. Second, the Government contends that the claims are invalid because the invention was on sale within the meaning of 35 U.S.C. §102(b) more than 1 year before the filing date of the application which ultimately matured into the patent in suit. To this second defense, plaintiff responds that its activities were for experimental purposes and thus not "sales" within the meaning of 35 U.S.C. §102(b).[2]

As shown hereinbelow, the gas-driven, counterrotating swashplate engine includes a fluid seal assembly 166. Also shown is fluid inlet valve 176. The housing, generally shown by the numeral 12, is connected with shaft 16 for rotation in a first direction. In addition, pistons 146, which are connected to swashplate ring 112, rotate with the housing. Swashplate cam 98 is not only attached to shaft 22, but is also attached by ball bearings to swashplate ring 112. Shaft 22, cam 98 and fluid inlet valve 176 rotate in a direction opposite to the rotation of housing 12 and shaft 16. Briefly, as a result of a force displacing the pistons 146, rotational forces are imposed on swashplate ring 112, and swashplate cam 98, such that the swashplate cam and shaft 22, as well as a propeller which is attached thereto, will rotate in one direction, while swashplate ring 112, housing 12, shaft 16, and a second propeller which will be attached thereto, rotate in the opposite direction.

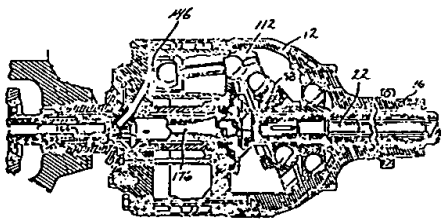


*Fig. 2*

*The Claims*

The claims in issue, in indented form for ease of understanding, provide:

1. A barrel engine comprising:
first and
second rotatable means
coaxially mounted and constructed and arranged for counter-rotation;
fluid pressure inlet means positioned coaxially with respect to said rotatable means for introducing fluid pressure into said engine;
motive power means including
a plurality of pistons reciprocatively mounted having their stroke axis parallel to the axial center of rotation, said motive power means being constructed and arranged to translate the fluid pressure into an axial force component;
means for converting the axial force component into an angular force component
and to exert the latter upon both of said rotatable means whereby said first rotatable means rotates in one direction and said second rotatable means rotates in opposite direction solely by virtue of the reaction to the rotation of the first rotatable means; and
means for connecting both of said rotatable means to individual work absorbing loads.

2. A barrel engine comprising:
first and
second rotatable means
coaxially mounted and constructed and arranged for counter-rotation;
fluid pressure inlet means positioned coaxially with respect to said rotatable

[1] It should be noted that counsel for plaintiff and the Navy met during the pendency of the Hamlin patent application and worked out a split license agreement. The agreement gave the Government a license under all claims except those which in the issued patent became claims 1, 2, 3, 5 and 11, the rights to these claims being retained by Clevite alone. While plaintiff's original petition urged infringement of claims 1, 2, 3, 5 and 11, plaintiff has since withdrawn its charge with regard to claim 11.

[2] Since a decision on the "on sale" defense is dispositive of the entire case, there is no reason to consider, discuss, or decide any of the other issues raised by the posttrial briefs.

means for introducing fluid pressure into said engine;
motive power means including
a plurality of pistons reciprocatively mounted having their stroke axis parallel to the axial center of rotation, said motive power means being constructed and arranged to translate fluid pressure into an axial force component;
cam means in engagement with said pistons for converting the reciprocating motion of said pistons into rotary motion, said cam means being fixedly mounted to one of said rotatable means for causing the latter to rotate in one direction and solely by virtue of the reaction to this rotation causing the other rotatable means to rotate in opposite direction; and
means for connecting both of said rotatable means to individual work absorbing loads.

3. A barrel engine according to claim 2, wherein said cam means is constituted by a swashplate means fixedly mounted to one of said rotatable means.

* * * * *

5. A barrel engine comprising, in combination:
first and
second rotatable means
coaxially mounted and constructed and arranged for counter-rotation;
fluid pressure responsive means structurally associated with said first rotatable means and providing a conduit connectable to a source of fluid fuel, said responsive means including a plurality of pistons having their stroke axis parallel to the common axis of the rotatable means and effective to translate fluid pressure acting upon the pistons into an axial force component;
swashplate means fixedly mounted to said second rotatable means and cooperatively arranged with respect to said fluid responsive pressure means to translate the said axial force component into an angular force component and to exert the latter upon said second rotatable means to rotate same in one direction and causing said first rotatable means to rotate in the opposite direction;
a fluid inlet valve connected to and rotatable with said second rotatable means and in flow communication with said conduit of said fluid pressure responsive means and effective to control the fluid flow between the conduit and the source of fuel; and power take-off means secured, independently, to each rotatable means for rotation in unison therewith.

As mentioned hereinabove, defendant contends that it has a license to use the inventions covered by the claims in suit because they were reduced to practice by plaintiff in the performance of work as either a prime or subcontractor under a Government contract. Plaintiff, to the contrary, argues that the inventions covered by the claims in suit were reduced to practice in November 1955, long before any work by plaintiff on a Government contract, at plaintiff's own expense, and that defendant is thus not entitled to a license thereunder.

Defendant counters by contending that if plaintiff is correct the claims are invalid because the inventions covered thereby were in "public use" or "on sale" within the meaning of 35 U.S.C. §102(b) for more than 1 year before the October 1960 filing date of the Hamlin patent. Plaintiff disagrees, contending instead that its activities with regard to the Hamlin engine were permitted under the experimental use exception to 35 U.S.C. §102(b). In sum, plaintiff, in order to prevail, must, inter alia, prove that the claims in suit were not only reduced to practice before the earliest Government contract, but that its activities more than 1 year prior to the Hamlin filing date for a patent are permitted under the "experimental use" exception to the 35 U.S.C. §102 "on sale" bar.

In order to meaningfully deal with the issues, it becomes necessary to set out an observation or two that the parties have either purposely ignored or confused. To begin, the Hamlin patent contains claims that are directed to at least two categories of inventions. For convenience, the claims can be divided into a first category, which covers the broad or basic invention and includes all of the claims involved in this action;[3] and a second category, which covers the improvement inventions and includes all of the claims under which defendant is admittedly licensed. This division is based upon and supported by the acts of the parties. At the very least, support for the above division is found in an agreement reached by the parties long prior to this lit-

[3] As well as claim 11, which plaintiff has withdrawn from this action.



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*On Sale*

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igation. Particularly, on April 27, 1964, Dr. Edward E. Sachs, a patent attorney for plaintiff, and Mr. L.M. Holloway, a patent attorney for the Bureau of Naval Weapons, met to negotiate an agreement covering the claims of the patent in suit under which defendant was to be granted a license. The parties agreed, as a later executed license agreement reflects, that defendant was to receive a license under all claims of the patent in suit that were reduced to practice by plaintiff in the performance of Government contracts. Defendant was purposely not licensed under the claims involved in this suit because, as Mr. Holloway's memo of May 13, 1964, states:

> The basic engine was developed by Clevite Corp. between 1953 and 1956 and was a gas operated engine, i.e., compressed air, etc.[4]

[3] It is also important to keep in mind that each claim of a patent is a separate and distinct invention. It is thus possible to discuss and deal with one or more of the claims independently and distinctly from the entire group of patent claims. See Smith & Griggs Mfg. Co. v. Sprague, 123 U.S. 249, 256 (1887); Hall v. Macneale, 107 U.S. 90, 96 (1882). It, accordingly, follows that one or more of the claims may be "on sale" or in "public use" without the inventions covered by the remainder of the patent claims being similarly "on sale" or in "public use."

*On Sale*

Title 35 U.S.C. §102(b) provides in pertinent part that:

> A person shall be entitled to a patent unless —
>
> * * * * *
>
> (b) the invention was * * * in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States * * *

Hamlin's patent application was, as previously mentioned, filed on October 5, 1960. Accordingly, the activities of plaintiff prior to October 5, 1959, are of vital importance to a resolution of defendant's charge that the Hamlin patent is invalid because the invention was "on sale" in this country.

The activities of plaintiff complained of began with an August 26, 1958, offer by Clevite to sell Aerojet six barrel engines in accordance with Aerojet Drawing No. 0-056050 and Specification No. AGC 10003. The contract called for payment, on a cost-plus-fixed-fee basis of $147,044.06, of which $9,619.71 covered the fixed fee. The price was further broken down to $109,246.26 to cover the design, development, testing, documentation and reporting, and a portion of the fixed fee; $31,795.92 for six engines and spares for 25 runs and workshop equipment, including a portion of the fixed fee; and $6,001.88 to cover engineering assistance at Aerojet, along with the balance of the fixed fee.

The Aerojet specification required the Clevite barrel engines to operate at a high er horsepower, $90 \pm 5$ and at a depth or back pressure of $50 \pm 10$ p.s.i. The engines called for by the prior contracts between plaintiff and defendant operated at a lower horsepower and at a reduced back pressure.

Aerojet issued purchase order OP 226139 on September 15, 1958, accepting the Clevite offer. The purchase order required Clevite to furnish six engines, complete documentation, engineering assistance, and the design, development, fabrication and installation of six hydraulic pumps at a nonitemized, total cost of $162,044.06. Delivery of the first engine was to be made on April 1, 1959.

Speaking to the status of the Clevite engine, the December 1958 Aerojet test report which covered the period October 26 through November 25, 1958, states:[5]

> The design of the larger-displacement Clevite engine has been finished and a prototype engine built. Two runs on normal propyl nitrate (NPN) fuel were observed by Aerojet personnel at Clevite, and there were no signs of damage when the engine was disassembled following the run.

The testing of the Clevite engine was done under the exclusive control of Aerojet, although a Clevite representative was present during the tests. The tests uncovered problems with the engine cooling system, piston O-ring failure, hot gas seal, and scoring of the cylinder walls and valve seats.

[4] See Eastern Rotorcraft Corp. v. United States, 184 Ct.Cl. 709, 719-20, 397 F.2d 978, 983, 154 USPQ 43, 47 (1968), where a similar memorandum was admitted into evidence and used in forming the court's findings of fact.

[5] Plaintiff's Ex. 165, at 12.

Following the testing of at least one of the engines, Aerojet requested a price quote for two additional engines from Clevite. On May 12, 1959, Clevite quoted a price and a portion of a fixed fee of $2,530 for two additional pumps; $3,210 for material and design obsolescence and a portion of the fixed fee; $10,200 for two additional engines and a portion of the fixed fee; and $318.12 for miscellaneous seal and valve items as well as the remainder of the fixed fee.

By way of a change order of August 19, 1959, to purchase order OP 226139, Aerojet accepted Clevite's offer to sell two engines. The change order increased the number of Clevite engines to be delivered to Aerojet from six to eight, and, as well, increased the contract price by $10,200, from $162,044.06 to $172,244.06. Clevite agreed to deliver the additional two engines to Aerojet by October 20, 1959.

In the meantime, and specifically on or around July 1, 1959, the Clevite barrel engine was selected as the propulsion system for the Mk 46 Mod O torpedo over three other proposed propulsion systems by a technical advisory group which supervised Aerojet's work under its Government contract.

Shortly thereafter, on July 23, 1959, representatives of the Navy, Aerojet and Clevite met to discuss the production of 30 more barrel engines. Since these engines were to differ in some respects from the previously-ordered engines, they were designated by the parties as "Lot B" engines to distinguish them from the previously supplied eight "Lot A" engines. The more significant differences were:[6]

a. The diameter of the hot-gas seal was reduced to lessen the load that had been excessive for the material used.

b. The length of the hot-gas seal was reduced so the seal would seat properly on the valve face, thus preventing the outer edge of the carbon insert from being spalled.

c. The top piston O-ring was replaced with two machined-Teflon rings because rubber O-rings were impractical due to the inadequate lubrication and high-temperature conditions.

d. The copper-impregnated carbon seat was replaced with a silver-impregnated carbon seat to reduce the combustion-gas erosion of the seat.

e. The rubber O-ring seal on the valve seat was replaced with a Teflon O-ring because of the rapid deterioration of the rubber and the resultant leakage of combustion gases.

f. The clearance between the pistons and cylinder was increased in order to counteract the thermal expansion of the pistons during extreme-depth conditions.

g. A shroud was placed around the cylinder head so that cooling water could be directed over it.

While the above activities were going on, and particularly on July 3 and 20, 1959, Aerojet requested price quotations from Clevite for production quantities of the barrel engine. Clevite responded by letter of September 10, 1959, quoting prices. However, in marked distinction and contrast from the previous bids which were made on a cost-plus-fixed-fee basis, the September 10, 1959, bid from Clevite was for firm, fixed prices on quantities of engines ranging from 10 to 2,500. The prices ranged from $4,400 per engine in quantities of 10, to $1,800 per engine if the order was for quantities of 2,500 or more. The bid explained that the barrel engines would meet the yet-to-be-established performance requirements of NOrd Specification OS 8169. This specification was expected to be published by the end of October 1959. Moreover, Clevite's September 10, 1959, bid stated that the start of delivery of the Lot B-type barrel engines could be expected by Aerojet within 90 days after the issuance of the final specifications. It is significant to emphasize that the prices quoted by Clevite to Aerojet on September 10, 1959, related solely to the cost for production of engines and did not include research and development costs.

Around September 1959, as a result of problems encountered during the testing of the engines, Aerojet decided to return all of the Lot A engines to Clevite for modification of the following parts:[7]

1. Hot gas seal.
2. Water control orifice.
3. Valve inserts.
4. Cylinders, new plain steel.
5. Pistons, revise clearance dimensions at top and revise top groove.
6. Teflon rings.
7. Ports in head, drill out to 5/16 and radius edge.

[6] Plaintiff's Ex. 176, at 21.

[7] Defendant's Ex. 100.



8. Spacer retainer c
piece.
9. Water seal forwa
10. Shroud for heac
11. Special bolts fo
make new.
12. New valve with
rangement.
13. Plug holes in B
14. Housing sleeve
and turn in place.
15. Pump housings.
16. Water pump ge

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[8] Plaintiff's Ex. 129.

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engines and did not include
development costs.
tember 1959, as a result of
ountered during the testing
, Aerojet decided to return
t A engines to Clevite for
f the following parts:[7]
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ntrol orifice.
erts.
, new plain steel.
evise clearance dimensions
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ngs.
ead, drill out to 5/16 and

Ex. 100.



8. Spacer retainer crankcase seal, new piece.
9. Water seal forward end, modify.
10. Shroud for head, make new.
11. Special bolts for crankcase cooling, make new.
12. New valve with modified hole arrangement.
13. Plug holes in B 20284 Sleeve.
14. Housing sleeve B 20363 remove and turn in place.
15. Pump housings, modify.
16. Water pump gearing, replace.

The Lot A engines were to be returned to Aerojet within 8 weeks, and, in fact, an engine having the above-indicated modification was returned on November 5, 1959.

Merely for purposes of completeness, it should be added that still another purchase order, OP 278343, was issued by Aerojet for the purchase of 42 Lot B-type swashplate engines after October 5, 1959.

While not expressly conceding that "a sale" of the Hamlin engine occurred prior to the critical October 5, 1959, date, plaintiff's September 3, 1976, posttrial brief, at p. 43, appears to place more emphasis on the fact that:

> [F]rom the date of reduction to practice of the Clevite engine in June and November 1955 until long after October 5, 1959, any uses and sales of the Clevite engine fall within the experimental use exception to 35 USC §102(b).

Plaintiff, in support of its argument, stresses that Navy contract NOrd 16753 of January 17, 1956, and, as well, Navy contract NOrd 17826 of May 28, 1957, both involved experimental design, development and testing of the barrel engine. More accurately, Navy contract NOrd 16753 was specifically intended to:[8]

> *Design and develop* a light weight, high speed, low cost, antisubmarine torpedo of the Mark 43 Mod 1 type having the following characteristics:
>
> * * *
>
> (9) Power plant
> (a) For propulsion - dry monopropellant such as Aerojet AN 2091 with Clevite Swash-plate engine
>
> * * *
>
> Fabricate two (2) torpedoes complying with the above characteristics * * *.
>
> The above work shall be performed in phases as follows:
> *Phase (A) - Design, develop, fabricate, and test* the propulsion and steering system
> *Phase (B) - Design, develop, fabricate, and test* the complete torpedo system incorporating the developments of Phase (A).

Plaintiff points out that:[9]

> Although the Clevite engine had been successfully operated on an expanding gas from a liquid monopropellant fuel (NPN) and from a gaseous fuel (compressed nitrogen), it had not previously been operated on an expanding gas from a solid monopropellant fuel.

Based on the above premise and looking for support to various progress reports submitted under contract NOrd 16753, plaintiff concludes that:[10]

> [M]any problems were encountered in "marrying" the Clevite engine to the solid monopropellant fuel.

Plaintiff stresses the problems it encountered in the valve design and materials, and cooling of the engine.

Similarly, plaintiff contends that Navy contract NOrd 17826 was awarded for the purpose of:[11]

> [C]ontinuing the development of the Clevite barrel swashplate engine, and in particular to design and develop an engine capable of developing approximately 75 horsepower * * *.

With regard to its work under the Navy contract to Aerojet, plaintiff emphasized that the September 15, 1958, purchase order required Clevite to:[12]

> Design, development [sic], fabricate and test six (6) Clevite engines to Dwg. 0-056050 N/C and Aerojet-General Corporation Spec. 10003 * * *.
>
> * * *
>
> [F]urnish, as may be required, engineering assistance, not to exceed 150 manhours effort, to buyer [Aerojet] at its plant * * *.

After tracing the chronology of work done under the Aerojet purchase orders and emphasizing the necessity of returning all Lot A engines, as explained

[8] Plaintiff's Ex. 129.

[9] See plaintiff's posttrial brief of September 3, 1976, at 44.

[10] Id. at 45.

[11] Id. at 46.

[12] See plaintiff's Ex. 138.

hereinabove, for modification, plaintiff urges:[13]

> Thus Clevite's experimental design, development and testing of the engine both as an Aerojet subcontractor under Purchase Orders OP 226139 and OP 278343 and as a direct Navy contractor under Contract NOrd 17826, continued long after October 5, 1959.

Before proceeding with a resolution of the "on sale" issue, mention should be made of the legal tightrope, upon which plaintiff is balanced. While briefly alluded to hereinabove, it is necessary to flesh out the legal quagmire so that the parties' arguments may be better understood.

On the one hand, plaintiff, in order to have title to the claims at bar, must show that a reduction to practice of the inventions covered by the claims occurred before January 17, 1956, when plaintiff was awarded the NOrd 16753 contract. On the other hand, plaintiff must explain away what defendant has characterized as "sales" more than 1 year before its October 5, 1960, filing date of the Hamlin patent. In its explanation, plaintiff resorts to the "experimental use"[14] exception to justify what might otherwise be proscribed as a sale under 35 U.S.C. §102(b). However, in so doing, it seems that plaintiff also runs the risk of convincing the court that an actual reduction to practice of the claims at bar did not occur prior to its work under the Government contracts, but rather that the reduction to practice occurred during what it now chooses to label as experimentation work as either a prime or subcontractor of defendant. If the latter is true, defendant would, of course, be entitled to a license under the claims in suit.

While under different circumstances, it may have been necessary to exactly establish the date of plaintiff's reduction to practice of the claims at bar, for reasons which will become clear hereinafter, the exact reduction to practice date is not essential to a decision of this case. Specifically, since the "on sale" bar is adequate to dispose of the case, it is sufficient to observe that both plaintiff and defendant agree that claims 1, 2, 3 and 5 were actually reduced to practice at least by July 1958.[15] July 1958 is, of course, prior to any of the "on sale" activities which defendant argues invalidate the claims in suit.

Before considering the "on sale" arguments of the parties, Chief Judge Caleb M. Wright's observations in the case of Philco Corp. v. Admiral Corp., 199 F.Supp. 797, 815, 131 USPQ 413, 428-429 (D.C. Del. 1961), warrant repeating:

> The cases dealing with §102(b) of the Patent Act are in a state of confusion resulting in part from an attempt to establish hard and fast rules of law based upon overly refined legal distinctions. The area sought to be governed by these rules, however, encompasses an infinite variety of factual situations which, when viewed in terms of the policies underlying §102(b), present an infinite variety of legal problems wholly unsuited to mechanically-applied, technical rules. The "in public use or on sale" rules as applied to the independent craftsman who constructs a product to order, for instance, may lead to an absurd result when applied to an integrated, mass production industry with highly organized merchandising systems. The question of what is experimentation and what is not may also take on a different complexion depending on the character of the device, the nature of the industry, and the facilities available to the particular inventor.

[4] It appears certain that the purpose of the on sale bar and the 1-year grace period is an attempt by Congress to balance the interests of the inventor with the interests of the public. On the one hand, Congress was concerned that an inventor would have sufficient time to not only determine whether a patent is desired following a sale, but that sufficient time would also be provided to have the patent application prepared and filed in the Patent Office. On the other hand, Congress was concerned with encouraging inventors to file for a patent as soon as possible and, at the same time, prevent the commercial exploitation of an invention as a trade secret for more than 1 year. See Metallizing Engr. Co. v. Kenyon Bearing & Auto Parts Co., 153 F.2d 516, 518, 68 USPQ 54, 56-57 (2d Cir. 1946).

[5] The range of situations proscribed by the "on sale" clause of 35 U.S.C. §102(b) are varied. For example, in

[13] See plaintiff's posttrial brief of September 3, 1976, at 52.

[14] The experimental use exception was recognized by the Supreme Court in the case of Elizabeth v. Pavement Co., 97 U.S. 126 (1877).

[15] Whereas plaintiff alleges an actual reduction to practice of the claims in suit by November 1955, defendant argues that it occurred on or about December 10, 1957.

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Chicopee Mfg. Corp. v. Columbus Fiber Mills Co., 165 F.Supp. 307, 118 USPQ 53 (M.D. Ga. 1958), the showing of samples of a new automobile seat cover fabric to various automobile manufacturers before the 1-year grace period was legally sufficient to place the invention on sale. It correctly made no difference to that court that production quantities of the fabric were not in existence at the time of the showing.

Similarly, a sale, more than 1 year before the filing of a patent application and pursuant to a secret military contract, of a valve for a classified missile was still held to be a sale proscribed by 35 U.S.C. §102(b). Piet v. United States, 176 F.Supp. 576, 123 USPQ 21 (S.D. Cal. 1959), aff'd, 283 F.2d 693, 127 USPQ 410 (9th Cir. 1960).

These cases generally recognize the interest of courts to prevent an inventor from commercially exploiting his invention for any amount of time beyond the 1-year grace period authorized by Congress. See Philco Corp., supra, 199 F.Supp. at 816, 131 USPQ at 429-430.

The same concern exists in this case. Plaintiff dismisses defendant's "on sale" arguments regarding the Lot A engine and the Clevite bid of September 10, 1959, which quoted prices on quantities of from 10 to 2,500 engines on the same experimental use exception. Plaintiff's argument, of course, ignores the commercial use which each of the complained of activities clearly amount to. But, equally significant, for reasons which will be more fully explained hereinbelow, plaintiff's argument also ignores the plethora of evidence that points away from plaintiff's experimental use defense.

In addition, plaintiff's arguments appear to be grounded upon the mistaken notion that only one invention is covered by the Hamlin patent. In fact, as has been previously explained, there are at least two categories of inventions: i.e., those reduced to practice before any of the Government contracts were awarded; and those reduced to practice under the Government contracts. Of course, the fact that improvement inventions were reduced to practice by Hamlin during the Government contract in no way affected the invention that plaintiff had earlier reduced to practice. That this is so is the only reasonable explanation as to why both plaintiff and defendant were willing to agree that defendant was licensed under all claims of the Hamlin patent, except the claims in suit. Specifically, the May 13, 1964, memorandum to file by Mr. Holloway explains:

1. A conference was held 27 April 1964 with Mr. Edward Sachs, Patent Counsel of Clevite Corp., to discuss the allowed claims in patent application Serial No. 60,746. The discussion involved clarification of the particular claims in which the government was entitled to a license.
2. Patent application Serial No. 60,746, entitled "Engine Unit" is for a gas wobble-plate engine which was redesigned and utilized by the Navy as a hot gas torpedo power plant. The basic engine was developed by Clevite Corp. between 1953 and 1956 and was a gas operated engine, i.e. compressed air, etc.
3. In 1956, Contract NOrd 16753, which was closed out in 1957, was initiated with Clevite Corp. to adapt the Clevite engine to utilize a solid propellant. As a result, certain inventions were made in the engine in adapting it for a solid fuel, primarily a "Rotary Valve," and a "Rotary Seal" and they were incorporated in the engine. These inventions were also included in the patent application that was filed to cover the basic engine.
4. During the conference, it was determined that allowed claims 23, 32 through 36, and 39 claimed the two inventions as part of the basic engine structure. Claim 38 was in a doubtful category, however, Clevite agreed to include it under the license. The remaining 5 allowed claims were drawn to Clevite's basic engine.
5. A split license agreement appeared to be the best solution to this situation. An attempt to file an application containing only the claims to which the government had rights would undoubtedly have resulted in a rejection of double patenting. Further, it is doubtful of what, if any, patent protection could have been obtained from filing applications covering only the "Rotary Valve" and "Rotary Seal". Accordingly, a license is being submitted by Clevite covering the claims cited.

That plaintiff was not involved in an experimental use of the invention covered by the claims at bar is further evidenced from a review of the type of work which was being done under the Government contracts.

Plaintiff's work under the Government contracts was concerned primarily with scaling-up the barrel engine, establishing its operating characteristics, and making minor changes to improve its efficiency.

At the previously referred to July 23, 1959, meeting, the participants agreed that Clevite would conduct additional tests on the following engine characteristics:

1. Horsepower, depth, speed
2. Vibration
3. Shock and acceleration
4. Depth
5. Humidity
6. Tropical atmosphere
7. Shelf life
8. Accessory integration
9. Post-run handling

All of these tests are indicative of a final analysis of a completed invention, rather than a search for additional modifications or improvements in the basic design of the engine.

Moreover, Clevite was to do some work on "design and development of [the] engine," which was defined further as:

1. Engine evaluation test
2. Valve and O-ring improvement
3. Grain (solid propellant) compatibility tests

The design work which was actually carried out after July 1959, primarily produced changes in the materials from which certain engine components were made. For example, the rubber O-rings on the pistons and valve seat were replaced with Teflon rings, and the copper-impregnated carbon valve seat was replaced with a silver-impregnated carbon valve seat.

Other changes made as a consequence of the tests done by Aerojet and Clevite included reducing the diameter and length of the hot gas seal, increasing the piston-cylinder clearance, and several changes in the water circulating (cooling) system.

Thus, the work done was not directed toward the invention covered by the claims in suit, the overall engine configuration, but was directed toward scaling-up the engine and checking and adjusting the performance of component parts. The work which was done and those changes which were made related to details of components not specifically recited or necessary to the invention covered by the claims in suit.

Further evidence that the plaintiff was not concerned with conducting experiments on the invention covered by the claims in suit appears from the plaintiff's own evaluations of the Hamlin engine. Statements by plaintiff's general manager unequivocally establish that the design of the Hamlin engine was a demonstrated fact by at least July 3, 1958. Particularly, Clevite's general manager, on April 2, 1958, wrote a letter to the Navy, stating:

> *The engine program is now involved with clean-up details*, such as optimum water diluent, and optimum repackaging for minimum size and weight. A six cylinder unit with captive pistons substantially shorter and lighter than the present unit is being built. Two modifications in valve design aimed at increased efficiency and ease of assembly are being built. *There is nothing of major import. The engine design has demonstrated capacity to meet its design requirements.* [Emphasis added.]

Again on July 3, 1958, Clevite's general manager wrote to the Navy to more emphatically declare that the inventive goals of the engine had been met, stating:

> *The engine design is now a demonstrated fact.* A resume of the progress during this past month is enclosed as attachment (1). Detailed results of the past period have been reported in the formal reports. Work is continuing to improve its mechanical and thermodynamic efficiency to minimize fuel consumption. [Emphasis added.]

Plaintiff's experimental use argument is made even more tenuous from its insistence that a reduction to practice of the claims at issue occurred prior to its January 17, 1956, NOrd 16753 contract with defendant. As is true with most areas of patent law, cases are available to support divergent and often contrary views regarding the facts necessary to establish a reduction to practice.

**[6]** The nature of the invention often is an important factor in determining if an actual reduction to practice has occurred. For example, in Mason v. Hepburn, 13 App. D.C. 86, 89 (D.C. Cir. 1898), the court stated:

> [S]ome devices are so simple, and their purpose and efficacy so obvious, that the complete construction of one of a size and form intended for and capable of practical use might well be regarded as a sufficient reduction to practice, without actual use or test in an effort to demonstrate their complete success or probable commercial value.

In an attempt to bring practicability and realism into an area in which the courts had previously been content to deal in generalities and overly technical considerations, Judge Learned Hand, in Sinko Tool & Mfg. Co. v. Automatic Devices Corp., 157 F.2d 974, 977, 71 USPQ 199, 202 (2d Cir. 1946), concluded:



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), concluded:



> [A] test under service conditions is necessary in those cases, and in those only, in which persons qualified in the art would require such a test before they were willing to manufacture and sell the invention as it stands.

In the case at bar, both the plaintiff and the inventor Hamlin were experienced in the art of torpedoes. The record establishes that Hamlin was in November of 1955 satisfied that the invention covered by the claims at bar was complete and operable. While he did recognize that the engine did not operate at maximum horsepower, and that other requirements might be imposed by the Navy, nonetheless, he appeared confident that the engine would operate to perform its intended purpose.

[7] It is, of course, necessary for an invention to proceed through various stages of development. To begin, the inventor must have a conception of the invention. This requires a formation in the mind of the inventor of a definite and fixed idea of the complete and operative invention which will later be reduced to practice. Fields v. Knowles, 183 F.2d 593, 611, 86 USPQ 373, 388-389 (CCPA 1950). Next, the device is built. After the invention has been built, the inventor (except in those instances of which I previously spoke where because of the simplicity of the invention or because of the certainty of the inventor that the invention can be manufactured and sold as it currently exists) conducts tests needed to convince himself that the invention is capable of performing its intended purpose in its intended environment. This latter stage permits, inter alia, the experimental use necessary to satisfy the inventor of the merits of the invention. Then, and only then, an actual reduction to practice of the invention occurs.

Judge Thornberry, in the case of In re Yarn Processing Patent Validity Litigation, 498 F.2d 271, 279, 183 USPQ 65, 70 (5th Cir. 1974), cert. denied sub nom. Sauquoit Fibers Co., Inc. v. Leesona Corp., 419 U.S. 1057, 184 USPQ 65 (1974), in a particularly exhaustive treatment of the subject of actual reduction to practice, put it thusly:

> The American "reduction to practice," however, is not achieved until the inventor has sufficiently tested the prototype to prove its utility and to determine that no further refinements are necessary.

Continuing with his decision, Judge Thornberry states, 498 F.2d at 280, 183 USPQ at 71:

> As a legal term of art, however, "reduction to practice" includes not only this reduction to reality [building of a model of the invention] but also sufficient testing or experimentation to demonstrate that the device as it exists possesses sufficient utility to justify a patent, i.e., that the invention is suitable for its intended purpose.

* * *

> Thus the legal definition of the date of reduction to practice appears to equate it precisely with the end of the experimental period for the purpose of §102(b).

A detailed review of the precontract work by plaintiff is not necessary in this instance since regardless of whether plaintiff's date of November 1955 or defendant's December 10, 1957, date for a reduction to practice is correct, it appears beyond dispute that the experimental use period as explained by Judge Thornberry was over by the time that plaintiff's "on sale" activity of August 26, 1958, August 19, 1959, and September 10, 1959, took place. On the other hand, it should be noted that if plaintiff was doing more than a "mere cleaning up of detail" after November 1955, plaintiff may be incorrect in its assertion of a reduction to practice of the claims in suit before its work on the first Government contract. Defendant, under such circumstances, may be entitled to a license under the claims.

Having failed, for all of the above reasons, to establish the experimental use of the Hamlin engine, it is concluded that plaintiff's August 1958 offer and subsequent delivery of six engines, the August 1959 offer and subsequent delivery of two engines, and the September 1959 offer in production quantities on a fixed-price basis of engines to Aerojet, clearly constitute sales within the meaning of 35 U.S.C. §102(b). See Chromalloy American Corp. v. Alloy Surfaces Co., 339 F.Supp. 859, 869, 173 USPQ 295, 302 (D.C. Del. 1972), where the court stated:

> When an invention is offered for sale more than a year before the patent application is filed, it is "on sale" within the meaning of 35 U.S.C. §102(b), even if an actual sale has not occurred. This is true, even when (a) but one offer has been made to but one customer; (b) the prices are only estimated rather than established; (c) no commercial production

runs have been made; and (d) the alleged invention is never sold.

### Conclusion

In sum, it is concluded from, inter alia, an analysis of the work performed by plaintiff after January 17, 1956, plaintiff's own arguments regarding a complete reduction to practice of the claims in suit, and the remarks made by plaintiff's general manager, that the invention covered by claims 1, 2, 3 and 5 were "on sale" within the meaning of 35 U.S.C. §102(b) for more than 1 year prior to the October 5, 1960, filing date of the Hamlin patent. Claims 1, 2, 3 and 5 are thus invalid. Accordingly, plaintiff is not entitled to recover and its petition is dismissed.

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Nichols, Judge, dissenting.

Respectfully, I dissent.

The question that divides the panel and me is whether certain sales and offers for sale of the patented invention, more than one year before the application, invalidate the patent or are excused by the experimental use doctrine. In that regard, I note that the panel is deleting a sentence in the trial judge's recommended opinion which reads -

> Plaintiff's arguments that a reduction to practice can occur before an experimental use period has been completed is unpersuasive and contrary to logic and the law.

I agree with this deletion. I think it is fairly clear or at least arguable, from Judge Thornberry's recent able and exhaustive treatment of the experimental use exemption, that public use or sale more than one year prior to the patent application will be excused, even after the invention could be deemed reduced to practice in the "legal sense," if experimentation is still going on that is reasonably necessary "to determine whether further refinement is needed." In re Yarn Processing Patent Validity Litigation, 498 F.2d 271, 285, 183 USPQ 65, 74-75 (5th Cir.), cert. denied, 419 U.S. 1057, 184 USPQ 65 (1974). This seems to me to stand to reason. Experimentation adequate to test for utility or to complete the invention itself may well necessarily precede reduction to practice "in the legal sense," but experiments of broader purpose can occur later. The purpose of the experimental use exception is to avoid rushing the inventor to the Patent Office when the invention still needs further experiment, with the result that he will be cheated out of part of the period of monopoly exploitation allowed him by law, and, also, I should think, the waste of Patent Office resources in processing half-baked inventions should be considered. These purposes are frustrated if the need for further experimentation of any kind stands in the way of prompt exploitation yet does not toll the running of the one year period for filing. There might be instances of a linkage in a buyer's mind, that led him to delay exploitation to await the result of experiments having nothing to do with the invention at issue. Thus an automobile manufacturer might delay incorporating a newly invented carburetor in a new model car, pending experiments with a new steering gear scheduled for the same model. That is not this case, and need not detain us. Here the experiments were with the very same "barrel engine" that is the subject of the patent, whose invalidity is asserted.

The connection of experiments with the invention must be evaluated in light of the surrounding circumstances. Here we have a new propelling mechanism for torpedoes, weapons of naval warfare. If there is any possible customer except the U.S. Government, the existence of such other is not suggested by the findings. The U.S. Government, though impressed with the invention, was unwilling to accept it for operational use without a solid propellant, whereas the inventors had developed it with a liquid propellant. Until these hesitations were resolved, the invention was unmarketable. In the circumstances, in my view, these were necessary experiments.

I note that the trial judge quotes from Judge Thornberry a passage from 498 F.2d at 279, 183 USPQ at 70-71 and two at 280, 183 USPQ at 71. The latter two he separates by stars to denote an omission. They are in the original widely separated and without logical connection with one another. At p. 281, 183 USPQ at 72 Judge Thornberry says flatly:

> Numerous cases, however, have explicitly extended the experimental period past the point of reduction to practice.

He employs the technique of stating apparently conflicting lines of cases and reconciling them to support his own position. A Canadian court had fixed a "date of invention" for the purpose of comparison with prior art. Judge Thornberry holds this lacks collateral estoppel effect in his court because the date of "reduction to practice" under our law comes later on

t, with the result that he will be out of part of the period of mo- xploitation allowed him by law, , I should think, the waste of Pat- ce resources in processing half- ventions should be considered. rposes are frustrated if the need er experimentation of any kind the way of prompt exploitation not toll the running of the one od for filing. There might be in- f a linkage in a buyer's mind, that o delay exploitation to await the xperiments having nothing to do invention at issue. Thus an au- manufacturer might delay incor- a newly invented carburetor in a el car, pending experiments with ring gear scheduled for the same hat is not this case, and need not Here the experiments were with ame "barrel engine" that is the f the patent, whose invalidity is

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s cases, however, have explic- ded the experimental period oint of reduction to practice. the technique of stating ap- nflicting lines of cases and them to support his own posi- dian court had fixed a "date of or the purpose of comparison art. Judge Thornberry holds llateral estoppel effect in his se the date of "reduction to der our law comes later on



typically, than the Canadian concept of date of invention under their law. Whether "reduction to practice" does or does not end the effect of experimentation as tolling the one year period for filing, was not really necessary to decide the issue before him, because the date of "reduction to practice" was itself fluid and in issue, unlike here. But I read him at p. 285, 183 USPQ at 74-75 as finally concluding that experimentation after the date of reduction to practice could still qualify, when it did not operate to postpone the date of reduction to practice itself.

The court will say, I suppose, that the experiments here involved do not toll because they related to another invention, not the one sued on. This analysis would distinguish between claims 1, 2, 3, and 5, sued on here, and other claims under the same patent. The latter group embody the results of the experiments here at issue, and are not in litigation, because the experiments were performed under government contracts and therefore defendant enjoys a royalty free license. You can, therefore, if you like, view the experiments as conducted towards the perfection of another invention. If, however, the experiments had been unsuccessful — and, antecedently considered, it is always possible for an experiment to fail — they would have tended to demonstrate that the embodiment claimed on in claims 1, 2, 3, and 5 was the best achievable. If the Navy had then terminated the experiments, and bought the previous embodiment for operational issue to ships and planes, I do not think the panel would hesitate to say the experiments had served to test the original invention, and, therefore, the one year period had been tolled. Is it then true that the result of an experiment determines its legal effect in these premises? I do not think so. I think, whatever their outcome, experiments to determine whether an invention can be improved are the same thing as experiments to determine whether, in Judge Thornberry's phrase, "further refinement is needed." In the eyes of a customer such as the U.S. Navy, at least, if an invention can be improved, it must be improved, and in such circumstances "further refinement" is always needed. If Sears and Roebuck had been the customer, we might have a different case.

I do not attach much weight to an offer to sell engines according to specifications yet to be established. I view the whole course of transactions with the Navy and with Aerojet as ancillary to the conduct of experiments, which were to evaluate the invention and determine its best embodiment. Not a single torpedo engine embodying the invention was in the pertinent period sold or offered for sale for incorporation in an operational torpedo, for issue to an operational ship or plane. The time for commercial exploitation of the invention had not begun. Those facts to me are decisive.

Judge Thornberry's analysis of the cases reveals a dismaying state of conflict and confusion. We Massachusetts lawyers used to say that some decision of the Supreme Judicial Court of the state could be cited on the wrong side of every issue, and so it is with the Federal cases in this area of Section 102(b). I cannot help seeing, as he does, some instances of almost willful laying of traps for the unwary. It may be we of the judiciary have an unconscious hostility towards the patent system. Our lives would certainly be easier if it did not exist. I know such motives are not at work in the majority decision here, but I cannot help thinking that, without so intending, the trial judge is adding another quagmire (as he calls it) to the many already lurking in this jungle. I would have preferred to clear out underbrush and open up solid land.

### Conclusion of Law

Upon the findings of fact and the foregoing trial judge's opinion which are adopted by the court and made a part of the judgment herein, the court concludes as a matter of law that claims 1, 2, 3 and 5 of the Hamlin patent are invalid. Plaintiff is not entitled to recover, and its petition is dismissed.

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**District Court, S. D. New York**

The Conde Nast Publications, Inc.
v. United States
No. 73 Civ. 4909
Decided Aug. 23, 1976

**TRADEMARKS**

**1. Title — Assignments — Assignment or license (§66.103)**

Retention by transferor of substantial right in transferred property or continued

in the forum state, thus invok-
its and protections of its laws."
471 U.S. at 475, quoting *Han-
la*, 375 U.S. 235, 253 (1958).
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explained, "ensures that a de-
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ult of 'random,' 'fortuitous,' or
ontacts. . . ." 471 U.S. at 475
ted).

case at bar, of course, Glas
ssly invoked the benefits and
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vill ultimately have to be deter-
terms, the contract is to be
der Swiss law. There was no
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higan law here, and the defen-
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nd "attenuated" to suggest

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dant's activities [in the forum
have seen, International Tech-
s of action did not arise until
ation, on December 31, 1992,
t under which Glas Trösch
tellectual property developed
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n, but from the use made of
property outside Michigan in
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the contract.

mponent of the *Mohasco* test
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ional Technologies fails the
lone by the European defen-
n to Michigan can fairly be
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minently reasonable for Glas
led into court in Berne, Swit-
r. Franz Kellerhals, an attor-
ofessor in Berne and former
Bernese Bar, has attested in
ed by the defendants that
echnologies could sue Glas
under Swiss law for unauth-
ans disclosed in confidence;
arty consenting to the Swiss
joined in the action;[4] and

hows that the defendants not
e will give such consent.



that injunctive and/or monetary relief would be available to International Technologies under Swiss law. The accessibility of the forum named in the contract, and the adequacy of the remedies available in that forum, are not in dispute.

We have attempted to give the particular facts of this case appropriately close scrutiny, bearing in mind the responsibility we have as an American court to exercise great care and "reserve" when it comes to extending our notions of personal jurisdiction into the international field. Our study of the record as a whole persuades us that it would be inconsistent with traditional American concepts of fair play and substantial justice for a Michigan court to assert personal jurisdiction over the Swiss, French, and Austrian defendants in this case. The order dismissing the case without prejudice for want of *in personam* jurisdiction is *AFFIRMED.*

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**U.S. Court of Appeals**
**Federal Circuit**

Kolmes v. World Fibers Corp.

No. 96-1046

Decided February 24, 1997

PATENTS

**1. Patentability/Validity — Specification — Written description (§115.1103)**

Specification of patent for cut-resistant yarn contains written description of invention required by 35 USC 112, including desirability of using two core strands for yarn with two covering strands having wrapping rate of eight to 12 turns per inch, since specification states that coverings or wrappings are formed "at the rate of 4-12 turns per inch, with 8 turns per inch being preferred," and although text of specification only discusses claimed wrapping rate with reference to figure showing single strand core, specification discloses two strand core with two strand covering.

**2. Patentability/Validity — Anticipation — Prior sale — In general (§115.0707.01)**

JUDICIAL PRACTICE AND PROCEDURE

**Procedure — Judicial review — Standard of review — Patents (§410.4607.09)**

Whether or not invention was on sale or in public use within meaning of 35 USC 102(b) is question of law that is reviewed de novo on appeal, but factual findings underlying trial court's conclusion are subject to clearly erroneous standard of review; determination that invention was on sale within meaning of Section 102(b) requires that claimed invention was operable, that complete invention was embodied in or obvious in view of device offered for sale, and that sale or offer was primarily for profit rather than for experimental purposes, and all circumstances surrounding sale or offer to sell, including stage of development of invention and nature of invention, must be considered and weighed.

PATENTS

**3. Patentability/Validity — Anticipation — Prior use — Experimental use (§115.0706.05)**

Relevant factual findings by federal district court are not clearly erroneous and support conclusion that sample gloves distributed prior to critical date were in experimental use, and thus did not invalidate patent for cut-resistant yarn under on-sale bar of 35 USC 102(b), since inherent feature of invention was ability to withstand use in environment such as meat-packing plant with repeated laundering, since testing was thus required in such environment in order to ensure that invention would work for its intended purpose, and since variations in yarn composition used in sample gloves, together with other facts found by district court, make clear that patentees were experimenting with yarn.

**4. Patentability/Validity — Obviousness — Relevant prior art — Particular inventions (§115.0903.03)**

Invention of patent for cut-resistant yarn would not have been obvious at time it was made based on disclosure in patent for similar invention, since Patent and Trademark Office held, during reexamination of patent in suit, that yarn of that patent had been invented prior to filing date of allegedly invalidating patent; patent in suit would not have been obvious in view of prior patent by same inventors, since prior patent discloses use of wire in addition to non-metallic fibers, and defendant has shown no suggestion or motivation to modify teaching of prior patent with regard to non-metallic fibers.

**5. Infringement — Defenses — Fraud or unclean hands (§120.1111)**

Inventors of patent in suit did not engage in inequitable conduct during prosecution of patent by intentionally withholding material prior art, evidence of alleged prior invention

by others, and evidence of pre-critical date sales activity, since there is no evidence that inventors intended to deceive PTO.

## JUDICIAL PRACTICE AND PROCEDURE

**6. Procedure — Evidence — In general (§410.3701)**

Federal district curt did not abuse its discretion by excluding from evidence invention disclosure documents of third party, which defendant alleges would invalidate patent in suit on ground of prior invention under 35 USC 102(g), since documents were hearsay and authenticated only by affidavit, since plaintiffs had no opportunity to cross-examine affiant, and since without opportunity for such cross-examination, plaintiffs were unable to fully challenge admissibility of documents by attempting to show that they did not meet requirements of business records exception; documents were not admissible through testimony of former consultant for third party, since defendant failed to establish that consultant was custodian or other qualified witness under business records exception.

**Particular patents — General and mechanical — Cut-resistant yarn**

5,177,948, Kolmes and Plemmons, yarn and glove, judgment that patent is not invalid and was not obtained by inequitable conduct affirmed.

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Appeal from the U.S. District Court for the Middle District of North Carolina, Osteen, J.

Action by Nathaniel H. Kolmes and Harold F. Plemmons against World Fibers Corp., World Elastic Corp., Dean R. Andrews, and Gregory V. Andrews for patent infringement. From judgment that patent in suit is not invalid and was not obtained by means of inequitable conduct, and from ruling denying entry into evidence of documents offered in attempt to prove invalidity, defendant World Fibers Corp. appeals. Affirmed.

Howard A. MacCord, Jr. and James L. Lester, of Rhodes, Coats & Bennett, Greensboro, N.C., for plaintiffs-appellees.

Malcolm E. Whittaker and Ralph H. Dougherty, Charlotte, N.C., for defendant-appellant.

Before Lourie, circuit judge, Friedman, senior circuit judge, and Rader, circuit judge.

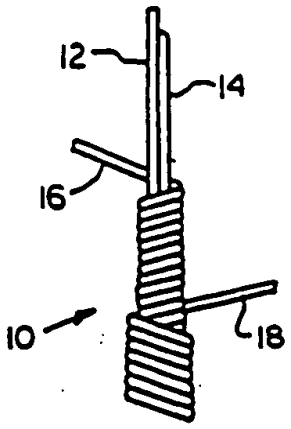
**Lourie, J.**

World Fibers Corporation appeals from the judgment of the United States District Court for the Middle District of North Carolina holding that U.S. Patent 5,177,948 is not invalid and that it was not obtained by means of inequitable conduct. It also appeals from the court's ruling denying entry into evidence of documents that it offered in an attempt to prove invalidity. *Kolmes v. World Elastic Corp.*, No. 4:93CV00719 (M.D.N.C. Sept. 18, 1995). World does not appeal the court's added finding of infringement. Because the district court did not err in its holding concerning validity, and did not abuse its discretion on the issue of inequitable conduct and in its evidentiary ruling, we affirm.

## BACKGROUND

The '948 patent concerns a cut-resistant yarn for use in making, *inter alia*, cut-resistant gloves. The prior art cut-resistant yarns typically used wire, which was undesirable because it restricted movement and was readily breakable. The '948 invention improved upon this material by using non-metallic components. Figure 1 of the patent, reproduced below, illustrates an embodiment of the yarn of the patent (10). It includes two core strands (12, 14), and two covering strands (16, 18) wrapped around the core strands in opposite directions relative to each other. One of the core strands comprises fiberglass. The other core strand and the covering strands typically comprise nylon, extended chain polyethylene, aramid, or polyester.

FIG. 1






Claim 1 reads as follows

1. A non-metallic c
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cut-resistant products

(a) a non-metallic
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(b) a non-metallic c
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(c) said two stran
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Claim 1 reads as follows.

1. A non-metallic composite cut-resistant yarn for use in making strong flexible cut-resistant products comprising:

(a) a non-metallic core including at least one strand of fiberglass, said at least one strand having a denier in the range of 375-1,000 and being substantially parallel to and untwisted with another strand in said core;

(b) a non-metallic covering wrapped on said core, said covering including at least tow [sic, two] strands unbraided and spirally wrapped in opposite directions relative to each other around the core, said composite cut-resistant yarn having a composite denier between about 2,000 and about 5,000;

(c) said two strands in said covering being spirally wrapped about said core at the rate of 8-12 turns per inch;

whereby said composite yarn may be formed into fabric on conventional knitting or weaving machines.

Nathaniel H. Kolmes and Harold F. Plemmons (collectively "Kolmes") filed their first application for patent relating to this subject matter on June 13, 1989. They filed a continuation-in-part application on March 2, 1990, and a continuation application on January 15, 1992. This latter application, filed under 37 C.F.R. § 1.62 and using the same specification as the 1990 application, properly claimed the benefit of the filing date of the 1990 application under 35 U.S.C. § 120. It was accompanied by additional claims which became part of the granted patent. It eventually became the '948 patent. In denying Kolmes' motion for a preliminary injunction, the district court found that the continuation application, and hence the '948 patent, was not entitled to the benefit of the filing date of the 1989 application and that finding has not been challenged on appeal. Thus, the additional claims of the patent have an effective filing date of March 2, 1990, and a critical date of March 2, 1989 for purposes of 35 U.S.C. § 102(b), if they are adequately described in the specification.

Before the critical date, sample gloves made from the new yarn were sent to certain of Kolmes' customers for testing. In particular, the district court found that these activities were documented by six "sales" records, two dated September 11, 1988 and four dated February 21, 1989. A typical use of the yarn was in making cut-resistant gloves for use in meat-packing plants, and Kolmes thus sent the gloves out for testing in order to see whether they would work in that environment and withstand repeated laundering.

Kolmes sued World for infringement. The district court conducted a bench trial, concluding that the '948 patent was not invalid. It found that the 1990 application adequately supported the claims added in the 1992 continuation application. With respect to the on-sale and public use bars, the court found that gloves distributed before the critical date were marked "sample," and were sent with a "sample sheet" free of charge. They were in experimental use and thus did not create a statutory bar.

The court also found that the patent was not invalid on the ground of obviousness over U.S. Patent 5,119,512 ("the Dunbar patent") and U.S. Patent 4,886,691 ("the Wincklhofer patent"), which it found to be most pertinent. The Wincklhofer patent discloses the use of wire in yarn, which the court found was different from the claimed non-metallic yarn of the '948 patent. The court found that the inventors proved they made their invention before the filing date of the Dunbar patent, thereby removing it as prior art. The district court found that no inequitable conduct occurred in the failure of the patentees to submit to the Patent and Trademark Office ("PTO") the Wincklhofer patent, the Dunbar patent, and evidence of pre-critical date sales activity. Finally, the district court found that World infringed the '948 patent and awarded damages based upon a reasonable royalty of ten percent. World now appeals certain of these conclusions to this court.

## DISCUSSION

On appeal from a bench trial, we review a district court's decision for errors of law and clearly erroneous findings of fact. Fed. R. Civ. P. 52(a); *see Interspiro USA, Inc. v. Figgie Int'l Inc.*, 18 F.3d 927, 930, 30 USPQ2d 1070, 1072 (Fed. Cir. 1994).

### A. *New Matter*

World argues, with respect to claim 1, that the 1990 application failed to disclose the desirability of using a wrapping rate of 8-12 turns per inch with a two strand core, rather than with a one strand core. It asserts that this subject matter was new matter because, according to World, it was first added with the new claims when the 1992 continuation application was filed. World argues that the inventors were therefore not entitled to the 1990 filing date and the claims were therefore barred by a public use. Kolmes responds that the newly added claims did not constitute new matter and were entitled to that filing date, precluding a public use bar.

The patent statute requires that the "specification shall contain a written description of the invention." 35 U.S.C. § 112, ¶ 1 (1994). Section 132 requires that no new matter be added to the disclosure of an application. 35 U.S.C. § 132 (1994). The question raised here is whether the claims added by the preliminary amendment to the 1992 continuation application find adequate support in the 1990 application sufficient to meet the description requirement of section 112, ¶ 1. *See In re Winkhaus*, 527 F.2d 637, 640, 188 USPQ 129, 131 (CCPA 1975) ("Claims added by amendment and drawn to an invention not so described in the specification are drawn to 'new matter' and prohibited by § 132.").

Whether a patent satisfies the description requirement of section 112, ¶ 1, is a question of fact, which we review for clear error on appeal from a bench trial. *Ralston Purina Co. v. Far-Mar-Co, Inc.*, 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed. Cir. 1985). We agree with Kolmes that the specification contains a written description of the invention of claim 1. With respect to claimed element (a), the specification discloses a core having two parallel untwisted strands in Figure 1 and at col. 3, lines 9-20. It discloses a denier in the range of 375 to 1,000 for the core at col. 5, lines 48-49. With respect to element (b), the specification discloses the spirally-wrapped two strand covering in Figure 1 and at col. 3, lines 21-27, and it discloses the claimed denier range at col. 5, lines 63-65. The specification discloses several non-metallic materials for the core and covering strands at col. 3, lines 15-20 and 23-27.

[1] Element (c) requires that the covering be wrapped at a rate of 8-12 turns per inch. At col. 5, lines 38-40, the specification states that the coverings or wrappings are formed "at the rate of 4-12 turns per inch, with 8 turns per inch being preferred." All the claimed limitations including the 8-12 turns per inch are thus well supported by the specification. Although the text of the specification only discusses the claimed wrapping rate with reference to a figure showing a one strand core, the specification discloses a two strand core with a two strand covering. World has not shown that the specification as a whole would have failed to convey to one skilled in the art the use of the claimed wrapping rate with a two strand core. *See In re Alton*, 76 F.3d 1168, 1172, 37 USPQ2d 1578, 1581 (Fed. Cir. 1996) (stating that in order to satisfy the written description requirement an applicant must convey as of the filing date that he or she was in possession of the invention). Claims to subject matter disclosed in the specification are not new matter. Accordingly, the district court did not clearly err in finding that the claims were supported by the 1990 application, thus satisfying the description requirement of section 112, ¶ 1.

### B. *The On-Sale and Public Use Bars*

World argues that samples of gloves made from the claimed yarn were given away and sold before the critical date in violation of the public use and on-sale bars. It insists that the samples were not in experimental use because they were not covered by confidentiality agreements, and no progress reports were kept concerning the performance of the gloves in the alleged tests. Kolmes responds that the district court properly found that the gloves in question were given away for experimental purposes. It argues that its initial tests were not satisfactory because the glass fibers being used broke and caused irritation and that, accordingly, further outside testing was required to ensure that the gloves could withstand normal use in a meat-packing plant. It argues that the testing satisfied the criteria for experimental use; in particular, it asserts that the gloves were provided to customers in relatively small numbers to Iowa Beef and other customers under conditions of confidentiality, and that reports were requested from them.

[2] Application of the on-sale bar under section 102 is a question of law based upon underlying issues of fact. *See KeyStone Retaining Wall Sys., Inc. v. Westrock, Inc.*, 997 F.2d 1444, 1451, 27 USPQ2d 1297, 1303 (Fed. Cir. 1993). "Whether or not an invention was on-sale or in public use within the meaning of section 102(b) is a question of law that this court reviews de novo; however, factual findings underlying the trial court's conclusion are subject to the clearly erroneous standard of review." *Manville Sales Corp. v. Paramount Sys., Inc.*, 917 F.2d 544, 549, 16 USPQ2d 1587, 1591 (Fed. Cir. 1990). A determination that an invention was on sale within the meaning of section 102(b) requires that "the claimed invention asserted to be on sale was operable, the complete invention claimed was embodied in or obvious in view of the device offered for sale, and the sale or offer was primarily for profit rather than for experimental purposes." *KeyStone*, 997 F.2d at 1451, 27 USPQ2d at 1303. In *UMC*, we stated that "[a]ll of the circumstances surrounding the sale or offer to sell, including the stage of development of the invention and the nature of the invention, must be considered and weighed." *UMC Elecs. Co. v. United States*,



816 F.2d 647, 656, 2 U
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*n-Sale and Public Use Bars*

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816 F.2d 647, 656, 2 USPQ2d 1465, 1471-72 (Fed. Cir. 1987).

[3] We agree with Kolmes that the relevant factual findings by the district court are not clearly erroneous and that they support a conclusion that the sample gloves distributed before the critical date were in experimental use. An inherent feature of Kolmes' invention was durability, the ability to withstand use in an environment such as a meat-packing plant with repeated laundering. That feature is evident from the preamble of claim 1, which states that the yarn is "for use in making strong flexible cut-resistant products." Testing was hence required in such an environment in order to ensure that the invention would work for its intended purpose. *See Manville*, 917 F.2d at 550, 16 USPQ2d at 1592 (stating that the invention, an iris arm device for a light pole used at rest stops, was "specifically designed to withstand year around weather" and that, accordingly: "Prior to its testing in the winter environment, there really was no basis for confidence by the inventor that the invention would perform as intended, and hence no proven invention to disclose."); *Gould Inc. v. United States*, 579 F.2d 571, 583, 198 USPQ 156, 167 (Ct. Cl. 1978) (stating that experimental use includes "tests needed to convince [the inventor] that the invention is capable of performing its intended purpose in its intended environment").

Furthermore, the district court found a lack of commercialization in the limited distribution of the gloves, stating that "[o]nly a few gloves were sent; the gloves were marked 'sample;' sent with a sample sheet, and free of charge." The court noted that six Weber Sales Inquiry records documented the experimental program, stating that: "Five records are marked sample, and each record details a variation of a Spectra®/fiber glass yarn. Each record documents a different product, and the variations indicate that the yarn was in an experimental stage." The samples were also subjected to destructive testing, which is evidence that the testing was experimental. World has not shown that these fact findings are clearly erroneous. The variations in the yarn composition coupled with the other facts make clear that the patentees were experimenting with the yarn; they were attempting to determine if the yarn sufficed to make strong, flexible cut-resistant products, like gloves, and to determine the effectiveness of the variations in the yarn. Accordingly, the district court did not err in holding that the '948 patent was not invalid on the ground of the on-sale bar.

World conceded at the hearing that its public use argument assumed that Kolmes was not entitled to the benefit of the 1990 filing date. Because, as explained above, we conclude that Kolmes was entitled to the benefit of that filing date, we need not address World's argument concerning public use. Accordingly, the district court did not err in holding that the '948 patent was not invalid on the ground of the public use bar.

C. *Obviousness*

World argues that the invention would have been obvious at the time it was made based upon the disclosure of the Dunbar patent. In particular, it argues that the Dunbar patent discloses the invention except for the limitation that the covering strands be wrapped at a rate of 8-12 turns per inch, which is a matter of routine design choice. Kolmes responds that the Dunbar patent is not effective prior art and, even if it were, it fails to suggest adjusting the turns to 8-12 per inch.

[4] A determination of obviousness under 35 U.S.C. § 103 is a legal conclusion involving factual inquiries. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1050, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988). The ultimate conclusion concerning obviousness, as a question of law, is reviewed *de novo*; the findings concerning the underlying factual inquiries are reviewed for clear error on appeal from a bench trial. *See id.* We agree with Kolmes that the district court did not err in determining that the Dunbar patent is not prior art to Kolmes' invention. As noted by the district court, the PTO determined during a reexamination of the '948 patent that Kolmes had invented the patented yarn prior to the filing date of the Dunbar patent. World has shown no error in this conclusion.

World also argues that a prior patent of the same inventors, U.S. Patent 4,777,789, disclosed a rate of 2-24 turns per inch, which encompasses the claimed range. World apparently argues that one skilled in the art would have known to modify that disclosed wrapping rate to that claimed in the '948 patent. Kolmes responds that World showed that there was no motivation to modify the invention disclosed in the '789 patent. We agree. The '789 patent discloses the use of wire in addition to non-metallic fibers, and World has shown no suggestion or motivation to modify the teaching of the '789 patent with regard to non-metallic fibers. Hence, it failed to prove that the invention would have been obvious in light of the '789 patent. *See ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984) ("Obviousness cannot be established by combining the teachings of the prior art to produce the claimed inven-

tion, absent some teaching or suggestion supporting the combination."). Accordingly, the district court did not err in holding that the '948 patent is not invalid on the ground of obviousness.

D. *Inequitable Conduct*

World argues that the inventors intentionally withheld material prior art, in particular, the Dunbar patent, evidence of alleged prior invention by employees of AlliedSignal, and evidence of Kolmes' pre-critical date sales activity. Kolmes responds that there was no showing of an intent to deceive the PTO or of materiality of the evidence in question.

A determination of inequitable conduct is committed to a district court's discretion. Accordingly, we review the court's judgment for an abuse of discretion. *Kingsdown Med. Consultants, Ltd. v. Hollister Inc.*, 863 F.2d 867, 876, 9 USPQ2d 1384, 1392 (Fed. Cir. 1988). To overturn a discretionary ruling of a district court, "the appellant must establish that the ruling is based on clearly erroneous findings of fact or on a misapplication or misinterpretation of applicable law, or evidences a clear error of judgment on the part of the district court." *Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1178, 33 USPQ2d 1823, 1827 (Fed. Cir. 1995).

Inequitable conduct consists of an "affirmative misrepresentation of a material fact, failure to disclose material information, or submission of false material information, coupled with an intent to deceive." *Id.*, 33 USPQ2d at 1826. One alleging inequitable conduct must prove the threshold elements of materiality and intent by clear and convincing evidence. *Id.*, 33 USPQ2d at 1826-27. The district court must then weigh any threshold findings of materiality and intent in light of all the circumstances to determine whether they warrant a conclusion that inequitable conduct occurred. *Id.*

[5] We agree with Kolmes that the district court did not abuse its discretion in finding a lack of inequitable conduct. Specifically, there was no evidence of an intent to deceive the PTO. With respect to the Dunbar patent, the evidence showed that Plemmons' office received a copy of that patent approximately one month before the '948 patent issued. However, there was no evidence that he personally saw it or had personal knowledge of it. This lack of evidence is inconsistent with an intent to mislead the PTO. The district court also found that there was no evidence of an intent to deceive the PTO through the failure to disclose information concerning the alleged "sales" activities in question and that Kolmes had a good faith belief that his patent was valid. Likewise, with respect to the information concerning alleged prior invention by others, there is no evidence of an intent to deceive the PTO. We do not find clear error in any of these findings. Accordingly, the district court did not abuse its discretion in holding that the '948 patent was not obtained by means of inequitable conduct.

E. *Evidentiary Ruling*

World argues that it was entitled to have introduced into evidence internal invention disclosure documents of AlliedSignal, Inc., which it alleges would invalidate the '948 patent on the ground of prior invention under 35 U.S.C. § 102(g). It argues that Kolmes would not have been prejudiced by the alleged surprise production of the documents only a few days before trial, because with reasonable diligence he should have discovered the documents himself. Kolmes responds that the AlliedSignal documents were properly excluded; they were hearsay and were not within the business records exception to the hearsay exclusion.

We review evidentiary rulings under an abuse of discretion standard. *Kearns v. Chrysler Corp.*, 32 F.3d 1541, 1547, 31 USPQ2d 1746, 1750 (Fed. Cir. 1994), *cert. denied*, 115 S. Ct. 1392 (1995). In order for World to obtain a new trial, it must show an abuse of discretion by the district court in excluding the challenged evidence and that such ruling prejudiced its substantial rights and was thus not harmless error. *See* 28 U.S.C. § 2111 (1994); *Kearns*, 32 F.3d at 1547, 31 USPQ2d at 1750; *DMI, Inc. v. Deere & Co.*, 802 F.2d 421, 428, 231 USPQ 276, 280-81 (Fed. Cir. 1986).

[6] We agree with Kolmes that the district court did not abuse its discretion in excluding the documents. The district court found that the documents were hearsay and not properly authenticated to be admitted under the business records exception. *See* Fed. R. Evid. 802, 803(6) (allowing the admission of records of regularly conducted activity through the testimony of a custodian or other qualified witness). They were authenticated only by affidavit, and the court found that Kolmes had no opportunity to cross-examine the affiant. Without the opportunity for cross-examination, Kolmes was unable to fully challenge the admissibility of the documents by attempting to show that the requirements of the business records exception had not been met.

World also attempted to authenticate the documents by the testimony of Paul Weber, who was previously a consultant for AlliedSignal, and it argues that the documents



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were admissible through his testimony. Kolmes responds that Weber was not a "custodian or other qualified witness" because he did not know when or how the documents were prepared. We agree with Kolmes that World failed to establish that Weber was a custodian or other qualified witness under the business records exception. Weber testified that he had seen the documents while attending a meeting at AlliedSignal. However, he failed to testify concerning the record-keeping process related to them, a requirement for admissibility of documents under the business records exception. *See* Fed. R. Evid. 803(6). Thus, World failed to establish that Weber was a custodian or other qualified witness, *see id.*, and the district court thus did not abuse its discretion in excluding the documents.

F. *Attorney Fees and Frivolous Appeal*

World requests damages under 35 U.S.C. § 284 as compensation for what it alleges are fraudulent acts of Kolmes. However, section 284 authorizes a court to award damages for infringement of a patent; World is the accused infringer and has not in this case prevailed in an infringement claim. Accordingly, World is not entitled to damages under section 284. World also requests an award of attorney fees under 35 U.S.C. § 285 ("The court in exceptional cases may award reasonable attorney fees to the prevailing party."). Because World is not the prevailing party, it is not entitled to attorney fees.

Kolmes requests an award of damages under Fed. R. App. P. 38, arguing that World's appeal is baseless. Rule 38 authorizes a court of appeals to award damages for a frivolous appeal, and we have held that appeals may be frivolous as filed or as argued. *State Indus., Inc. v. Mor-Flo Indus., Inc.*, 948 F.2d 1573, 1578, 20 USPQ2d 1738, 1742 (Fed. Cir. 1991). An appeal is frivolous as filed if "no basis for reversal in law or fact can be or is even arguably shown." *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1554, 220 USPQ 193, 203 (Fed. Cir. 1983). Kolmes' request first fails for lack of a separate motion. *See* Fed. R. App. P. 38. On the merits, although World had many hurdles to overcome in its attempt to obtain a reversal, its appeal was not baseless and therefore was not frivolous as filed. Kolmes also argues that World's brief is misleading. We have carefully considered World's briefs and conclude that they do not evidence any sanctionable conduct. *See State Indus.*, 948 F.2d at 1579 n.4, 20 USPQ2d at 1743 n.4 (listing examples of sanctionable conduct). Because we conclude that World's appeal was not frivolous as filed or as argued (even considering its unfounded claims for attorney fees or damages under sections 284 and 285), Kolmes is not entitled to damages under Rule 38.

We have considered the parties' other arguments and conclude that they are either unpersuasive or unnecessary for resolution of this appeal.

## CONCLUSION

The district court did not err in holding that the '948 patent is not invalid. It did not abuse its discretion in holding that the patent was not obtained by means of inequitable conduct and in denying entry into evidence of the AlliedSignal documents. World is not entitled to damages under section 284 or attorney fees under section 285. Because World's appeal was not frivolous, Kolmes is not entitled to damages under Fed. R. App. P. 38.

*AFFIRMED.*

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**U.S. Court of Appeals**
**Fifth Circuit**

Arthur A. Collins Inc. v. American Telephone and Telegraph Co.

No. 95-10520

Decided November 15, 1996
(Unpublished)

**JUDICIAL PRACTICE AND PROCEDURE**

**1. Procedure — Contempt; sanctions (§410.49)**

Sanctions imposed on plaintiff for filing and prosecuting frivolous appeal from dismissal of state law claim alleging fraud on the U.S. Court of Appeals for the Federal Circuit are affirmed and increased following show cause hearing, since claim was mere collateral attack on Federal Circuit's decision reversing judgment for plaintiff in patent infringement suit, since plaintiff had full and fair opportunity to argue against defendant's alleged perpetration of fraud on Federal Circuit while before that court, since plaintiff failed to move in Federal Circuit to set aside judgment pursuant to Fed.R.Civ.P. 60(b), since plaintiff elected to prosecute instant appeal despite settled law that federal district court cannot alter mandate of circuit court on basis of matters included or includable in prior appeal, and since appeal was objectively unreasonable.